AN INTRODUCTION TO ANTHROPOLOGY

WILSON D. WALLIS

AN INTRODUCTION TO ANTHROPOLOGY

"The proper study of mankind is man.

. . . . . .

Let us, since life can little more supply,
Than just to look about us and to die,
Expatiate free o'er all this scene of man."

—POPE

AN INTRODUCTION TO ANTHROPOLOGY

BY

WILSON D. WALLIS

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TO

MY TEACHERS IN ANTHROPOLOGY

Henry Balfour

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EDITOR'S INTRODUCTION

An increasing interest in anthropology is shown by the establishment of new courses in American universities; by the practical value of this study for the perplexing problems faced by the legislatures of modern states when dealing with racial contacts and migrations; and by the scientific importance of the subject to the allied social sciences.

Professor Wallis presents in this volume a comprehensive outline of all of the main divisions of the science of anthropology. The book is sane in point of view and judicial and critical in treatment. Recent semi-popular works dealing with race problems have tended to confuse rather than clarify our understanding of these problems of human relationship already clouded by prejudice and bias. In this book Professor Wallis has kept close to established principles and proven facts.

Sociologists will find the book a useful and reliable account of primitive society, the physical facts of race, the contrasting characteristics of different cultures, and an analysis of early forms of social organization. The point of view is characterized by sympathetic understanding of the social aspects of primitive human relations without sacrificing the importance of basic physical and anatomical data.

Economists will find the part on economic and industrial activities a valuable portrayal of the simple beginnings of economic institutions. This phase of anthropology is treated with sufficient detail and completeness to be useful in the study of early economic history.

Primitive culture is a many-sided phenomenon often oversimplified in the treatment accorded it by sociologists, economists, and political scientists. The complexity of early cultures and of primitive contemporary cultures is here em-

phasized by a wealth of illustrations and a soundness of interpretation which should be of great value to social scientists who seek a scholarly and scientific treatment of the larger backgrounds of the modern social order.

F. Stuart Chapin

PREFACE

SINCE Tylor wrote his *Anthropology,* nearly a half-century ago, there has been no attempt in English to sum up the findings of the science in the various fields with which it deals.

The student must turn to this or that special treatise which deals with only a limited portion of the field, and nowhere is he offered a perspective upon all of it. This dearth follows from the highly specialized nature of the subject, a field now so ample that the specialist in one phase often is unacquainted with the data and problems outside of his specialty.

In many ways this specialization redounds to the greater good of anthropology, for the specialist is master in his chosen field. Yet if anthropology is a living whole, specialization will not supplant, but rather supplement, a synthetic view of its parts; for there is an interrelation of parts, knowledge of which even the specialist needs.

In recent years much stress has been placed upon the geography and the history of culture. Students have sought the distribution of the various phases of culture and the processes of change. Their findings have added considerably to our understanding of primitive life and have thrown new light on many phases of primitive culture. Yet, when all is said, the distribution of culture is merely its geography and the history of culture processes is merely history. There is still need to know the nature and significance of the culture traits which travel and which develop. Our effort, accordingly, is to depict primitive man in his various aspects, so that we may have of savagery an understanding comparable with our understanding of civilization. Of no culture is this understanding very intimate or very extensive. He who claims to understand the civilization in which he lives, or its history, is to be congratulated; and no less a claimant to honors is he who professes to understand savagery. Even so, the impossibility of com-

pleting a task satisfactorily is poor excuse for not attempting it—else few of us would risk the experiment of living. Goethe is not entirely wrong when he declares that only the incomprehensible is worthy of our efforts.

No complete understanding of the cruder cultures is possible, at least not now, but much can be accomplished by way of a partial understanding. As with civilization, so with savagery, we can hope to grasp only the larger outlines, to see some of the characteristic phases, to detect a few outstanding traits. This is worth while if one is interested in man as a carrier and maker of culture. Our account contains little theory, as little as possible, and, for the most part, theoretical reconstructions have been avoided.

In anthropology generalizations are as treacherous as they are enticing. The more one studies this field, the more cautious one becomes in making inference. The facts of primitive life do not constitute the science of anthropology, for we must understand their import as well, but the facts are necessary. The student should first make acquaintance with the facts, building up inferences from them, rather than proceeding deductively from principles handed down to him. He should have access to descriptions of tribal life and thus work, as nearly as may be, in the anthropological laboratory.

The late L. R. Sullivan had read the chapters on physical anthropology and given me helpful suggestions. A similar service has been performed by Professor N. S. B. Gras in connection with a first draft of the chapters dealing with economic and industrial conditions. To Professor F. S. Chapin I am indebted for much assistance in the organization of the material. The help given by my wife, Grace Allen Wallis, has been indispensable. The drawings have been made by Mr. Robert Wolpert, of the University of Minnesota.

W. D. W.

Minneapolis, Minnesota,
April 30, 1926.

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Part One

PHYSICAL ANTHROPOLOGY

THE physical structure of man may be regarded from three aspects: as it is at the present time (its anatomy, physiology, morphology); as it was in historical eras and in prehistoric times; as it probably will be in the near or the remote future. This is to regard man's structure primarily from the evolutional, or developmental, angle. Like all other creatures in the animal kingdom his structure is subject to change, always has been, always will be. The story of the change must be found by consulting the remains of prehistoric man and comparing them with the structure of contemporary man. The change in his mode of life influences structure in many ways, so that no forecast of his structure can be made unless we are able to forecast the culture. The life of a wild animal is more conducive to the structure of a wild animal than is a life of domestication involving sedentary habits. Indeed, man's culture, there is reason to believe, has been instrumental in evolving his structure, and in the future culture will probably influence structure more than structure will influence culture. But why did man evolve those characteristics which mark him off from other animals? Why did he become the superior animal destined to hold the mastery of the planet?

There is no answer, unless this be considered an answer: It was because he was man, imbued with qualities different from those possessed by other animals and working out his salvation in his own predetermining manner. The maker of man is man himself, though he has been a long time in evolving his culture and his structure, and "how and why primitive man alone of the Primates developed the faculties for speech and culture remain a profound puzzle."

"The discoveries made by European travellers in far-off seas and distant coasts show us a picture as instructive as it is entertaining of peoples of various stages of civilization in our world standing round us, just as we see the children of various ages in a family standing round an elder brother, and by their condition reminding him what he was formerly, and through what stages he has come to man's estate. An overruling Providence seems to have reserved these immature races for our learning, until we were wise enough to profit by the lessons set before us and to be able to reconstruct from these examples the lost history of the beginnings of mankind. The picture of the childhood of our race is sufficiently depressing and humiliating, but we must remember that farther back our forbears were much less rational than the lowest of these."

—SCHILLER

AN INTRODUCTION TO ANTHROPOLOGY

CHAPTER I

INTRODUCTION: THE SCOPE OF ANTHROPOLOGY

"ANTHROPOLOGY" is derived from two Greek words meaning, literally, "the science of man." In earlier writings it had the connotation of "human," the corresponding Latin root being *homo,* "man." In philosophical and theological writings "anthropological" means "human." With the development of anatomy and physiology "anthropology," especially on the Continent, referred to the comparative anatomy and physiology of man. In Germany and in France "anthropology" denotes the physical aspects of man, which are more accurately described in English as "physical anthropology." In the latter half of the nineteenth century, in the decades following the publication of Darwin's *Origin of Species,* "anthropology" came to denote a science of man as an animal distinct from other animals. As used in English, "anthropology" has a twofold reference: It views man as a creature in a kingdom of his own and seeks the differentiating characteristics of his species; again, it views him as composed of races. So far as anthropology deals with the physical side of man it is a phase of biology and a branch of comparative anatomy. On the social side it is part of sociology and history. It differs from them in its point of view and in its methods, but the respective fields overlap.

Briefly, anthropology is the study of man from the larger perspective. Social anthropology is the story of cultures, their development, achievements, and interrelations. History deals with the story of western European civilization. It now in-

cludes Egypt, Babylonia, Greece, and Rome, since the historian finds that western European civilization has its roots in these Mediterranean cultures or has been greatly influenced by them. Because of this acculturation European history includes an account also of Japan, China, and various peoples in whose lands European nations have established colonies or trading posts. Inasmuch as history deals with European civilization, and other special sciences treat of other high cultures—Mediterranean, Chinese, Hindu, Persian—anthropology is concerned mainly with the lower peoples who otherwise are left unprovided for. Always history refers directly or indirectly to European civilization. Anthropology is interested in man as man and in culture because it is a human attribute. Hence it is concerned with his place in the animal kingdom and with the physical traits which mark him off from the species to which he is most closely akin. We think of him as leading the procession of evolution, but even so there must be some which follow more closely upon his heels than do others, and which give more promise of eventually evolving into rational creatures should the human race be exterminated. If we are too proud of our estate and too condescending to our nearest kin in the animal world, this is only because we have too long been their competitors and have forgotten the lowly estate from which our remote ancestors mounted to a higher plane of living.

Those ancestors seem to us remote and, at times, unreal. Remote they were, but certainly not unreal, for their bones have been left in glacial deposits and river effluvia, awaiting the spade of a sophisticated Iron Age man to bring them to light. From time to time we uncover remains of ancient man and so are face to face with him across great lapses of time. If he could speak now—as no doubt he spoke then—we should be more interested in his story about himself than in our present story about him. But since he speaks only as silent witnesses speak, we must reconstruct that story.

The implements which he has left from glacial times are for the most part crude, as would be much of our civilization

if only the part remained which would endure the erosions of millennia. Even so, the implements which lie under geological deposits do tell us something, and they do not lie, as sometimes do historical records.

Indeed, anthropology is concerned mainly with the non-historical or pre-literate peoples, those who have not evolved writing. These include the peoples who lived before man anywhere had invented writing and also those who live or lived a pre-literate life contemporaneous with the few higher civilizations which use or used writing. The savages contemporaneous with us are pre-literate, although contemporaneous civilizations are literate. We once used these contemporaneous peoples of lowly culture to reflect light upon the thought and activities of prehistoric man, but that procedure is now recognized as improper. The cultures of contemporaneous savages are very diverse, even when certain things, like the use of stone implements, may be common, and we do not know what contemporary savage tribe is analogous in its culture to that of any pre-historic man, indeed we do not know, nor should we suppose, that any of them are a counterpart in every detail of culture to any phase of prehistoric culture.

We study contemporary savagery for its own sake—and not without some regrets that the term "savagery" has the double connotation of pre-literate cultures and of fierceness and brutality. For the primitive man known as the savage is often as gentle in disposition as is civilized man, and perhaps usually is more humane in the treatment of members of his own tribal or social group.

He engages in various economic and industrial activities, eking out a living by ways simple or ingenious. These quests for food and for goods differ markedly from area to area, and no description of this phase of pre-literate culture will apply to more than a limited portion of savagery. He fishes, hunts, practices agriculture, keeps domesticated animals; but not in all areas are all of these activities found, nor are they identical in any two areas.

Man copes with his environment and learns to control it or to profit from it. His applied science is embodied in the various economic and technological processes by which he lives, but his thought moves in larger realms and he is botanist, geographer, astronomer, geologist, physiologist, and psychologist. He does not merely do and die, he also reasons why.

His reasoning why often leads him to the practice of crude magic, but it also inspires in him reverence and religious attitudes. His gods are not always noble, but always he has gods of a sort, though they do not always have personal attributes. He is not without a sense of responsibility to fellow man; he is always an ethical being.

In fact, he must get along with his fellows and they with him. This means that there must be working relations of co-operation, and so in every area of savagery there is political and social organization. Indeed, the forms of his social life are almost as various as the individuals who comprise mankind.

A common language is a bond which holds the tribe together, and in every tribal group there is a well-developed language. *Homo alalus*—man without language—is unknown in savagery. Thanks to language, he can build up a world of ideas, and this world he creates and hands on in the form of stories and traditions which pass current in the tribe and become a heritage for generations.

Nor is he satisfied to take things merely as they are. Primitive man of our day, as well as prehistoric man of a remote day, has had artistic impulses, and these are as universal as language itself. Everywhere man is an artist, beautifying objects and playing a creative rôle.

In short, all of the fundamental activities which characterize civilization are found in savagery, usually in less developed form. In a very real sense, therefore, a primitive culture is a civilization, less complex than is our own, but each has dormant within it all of the achievements which mark the superiority of the present age over those which have preceded. As the achievements of the twentieth century were potential in

the preceding century, so the achievements of a higher civilization are potential in even the crudest savagery. And, to do us full justice, it must be admitted that perhaps civilization is capable of a considerable amount of savagery, taking "savagery" with its double connotation.

Anthropology, then, is ancillary to each and all of the branches of knowledge which are concerned with human beings. For the anatomist the comparative data of physical anthropology round out his study of man, the civilized European, by the study of man everywhere. For the historian of early civilizations pre-history is necessary to extend the perspective and give the backgrounds of early Mediterranean and Far Eastern civilizations. The economist must go to primitive society if he wishes an account of the economic life at its simplest. The scientist who sees the value of comparative studies and of an understanding of human motives and historical backgrounds must turn his attention to the attitudes and interpretations of the so-called untutored savage, who, at any rate, has had a different kind of tutor than falls to the lot of the conventionally educated European. If one wishes to understand social life, ethics, religion, art, music, language, mythology, or literature in larger perspective, it is to anthropology and its field that he must go for amplest illustration.

No one knows his own civilization if he knows only it. We must study human history in the large if we would understand any one phase of it, such a phase, for example, as contemporary European civilization. One who sees our contemporary civilization from the perspective of human history sees it with new eyes and with new interest.

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The best introduction is the first chapter in E. B. Tylor,

[1] The following abbreviations are used:
AA, American Anthropologist, New Series.
AM, Anthropological Papers, American Museum of Natural History.
EB, Encyclopædia Britannica, 11th Edition.
ERE, Hastings' *Encyclopædia of Religion and Ethics.*
HAI, Handbook of American Indians.

Anthropology, and Tylor's article on "Anthropology" in *EB.* See the first chapter in R. R. Marett, *Anthropology* (Home University Library), and the first chapter in A. L. Kroeber, *Anthropology* (1923). Also, Franz Boas, *Anthropology* (Columbia University, 1908), W. D. Wallis, "The Teaching of Anthropology," in *AA,* 1924; Robert Munro, "Anthropology," in *ERE.*

JAI, Journal of the Royal Anthropological Institute of Great Britain and Ireland.
ABE, Annual Report of the Bureau of Ethnology.
UC, University of California Publications in American Archæology and Ethnology.

CHAPTER II

MAN'S HERITAGE AND HIS KINSHIP

Memento te animalium esse—Remember you are a member of the animal kingdom.—PAUL TOPINARD.

MAN'S skeletal structure is that of a vertebrate; the method of nourishing the young is that of a mammal. His blood, his system of muscles and of nerves, his heart with its veins and arteries, his lungs with respiratory system functioning with circulatory system, correspond in general structure and function with those of other mammals. He possesses the same number of limbs terminating in the same number of digits as do most other mammals. His senses are like theirs; his organs of sense are the same in number and occupy the same relative position. Every detail of structure common to mammals as a class is duplicated in man, who differs from them only in such way and to such degree as the various species or groups of mammals differ from one other. He is born, grows, weakens in old age, dies.

When, however, we compare the general outline of the human frame with that of mammals of a lower order we find important differences. In the lower mammals the trunk of the body is relatively long and the sagittal or antero-posterior diameter exceeds the transverse. The sternum is elongated and narrow, as are also the pelvis and the sacrum. In mammals such as the horse and the bear, which have no clavicle, the sternum is farther from the sacrum in the vertical line and upward movements of the fore limbs are more difficult. In monkeys and anthropoids the pelvis and the thorax are of increased lateral diameter, the sternum larger and broader, the clavicle larger. The longitudinal diameter of the trunk is greater, while both transverse and sagittal diameters are less, the sagittal being relatively less than the transverse.

Changes in posture and in habits as we proceed from the lower animals to the ape and to man are correlated with changes in structure.

THE ANTHROPOID APES MAN'S NEAREST RELATIONS

Comparison of the skeleton of man with that of any other mammal shows a likeness in the fundamental lines along which the two are built. The similarity in the architecture of the bony parts challenges attention. A comparison of the skeleton of man with that of a higher ape shows a similarity more thoroughgoing than in the case of any other animal. One need not be a trained anatomist to distinguish between the skeleton of a man and that of a manlike ape, but though the difference is apparent even to an untrained observer, the similarity is striking. The skeleton of an orang or of a chimpanzee is a distorted copy of that of man, with few exceptions bone corresponding with bone, though differing in size, proportions, and detailed position. As Buffon wrote in 1766, "If we study the orang-outang with regard only to his configuration, we might regard him . . . as either the highest of the apes or as the lowest of mankind . . . because, as regards his body, he differs less from man than he does from other animals which are still called apes." [1]

The similarity is not accidental. One interpretation of its significance is that it indicates genetic relationship. It is probable that the higher apes are our nearest relations in the animal kingdom, but they must be reckoned as cousins of undetermined degree rather than as ancestors. How remote our common parentage is we cannot say, for we have not yet discovered the "missing link," the skeletal tie that binds man to his nearest kin of the animal world. Meanwhile we can only resort to conjecture in our efforts to learn how man came to develop along a different line from that taken by his cousins, eventually to attain a distinctiveness and distinction which exalt him above the apes almost as much as above any other member of the mammalian kingdom. If, however, certain

[1] The last assertion, however, is incorrect.

things are taken for granted, we can suggest some probable paths of human development.

On the assumption that man, as is now the case with apes, was once arboreal, we have a fruitful source of suggestion. When he had abandoned life in the trees his new habitat demanded new structural and functional qualities. The cause of his abandonment of arboreal life may have been that a more rigorous climate in the portion of the globe then inhabited by him had dwindled and finally killed the larger vegetation in which it had been his fortune to dwell, so that, the trees disappearing, he was forced to earth. Life on the ground would foster characteristics different from those called forth by life in the branches of trees. No longer immune from attacks by large land animals, he would be compelled to enter the lists against them. In the new field of conflict and competition where he encountered new foes and sought to outwit them at the new game his best efforts would be required. While budding terrestrial man struggled with this harsher environment, the apes maintained themselves the more easily in a warmer, damper climate in the tree tops of tropic lands. Man was not wholly unfortunate in the new environment, but profited from his hardships. Through sheer self-defense he evolved those characteristics which later gave him command over life in every field; the apes, meanwhile, paid dearly for their freedom from care and competition by accepting life indefinitely in the tree tops.

If those surroundings are most favorable which offer the greatest number and variety of stimuli and call into action all the powers of the individual, then man profited by his added hardships, for a life of ease means lack of stimuli, and consequently loss of power. "The great problem for animals and man seems to be not how to get a living, but how to live so as to insure advance; not so much to seek out new, easy, and promising radiating lines of livelihood as, avoiding these, to follow an upward path. Even extinction is in many cases the result of so complete conformity to conditions which are transitory that, when these change, the animal finds itself in

time ill adapted to the changed surroundings and disappears" [1] —a fate which is now overtaking the higher apes.

We are, of course, not certain that man took to the surface of the earth because of degeneration of the trees which formerly served as places of habitation. It may be a case of local adaptive radiation. In a given locality the various animals are differently adapted to environmental conditions—the squirrel is adapted in one way, the bird in another, the rabbit in another. Each is adapted to a portion of the environment into which it fits after a manner all its own. There is, therefore, no reason to suppose that man may not have evolved as a surface walking animal in the same environment in which apes remained in tree tops.

BLOOD RELATIONSHIP

The literal blood relationship of man and the apes may be inferred from their similar susceptibility to diseases. In captivity the anthropoid apes are susceptible to tuberculosis of the lungs and quickly die of it or some other respiratory disease. Monkeys when inoculated fall a prey to cerebro-spinal meningitis and are susceptible to many human diseases.

Serum tests show the blood relationship more conclusively. Serum from human blood is injected into a rabbit, in whose body a counteragent, an anti-human serum, develops. Blood drawn from the rabbit now carries an anti-human serum. When this anti-human serum is placed in human blood a white precipitate is formed and settles at the bottom of the test tube; but no such reaction occurs if the blood be, for example, that of a pig, or that of a fowl. That the serum test indicates relationship is corroborated by similar tests on animals of various species. If the blood of animals of the same species is brought into contact with the anti-species serum—anti-pig or anti-horse, as the case may be—the reaction is prompt and strong. But if it be the blood of a species closely allied to that of the animal from which the serum originally was taken, that of a donkey, for example, if the

[1] John M. Tyler, *Man in the Light of Evolution.* New York, 1908.

original serum was from a horse, the reaction is weak and precipitation takes place more slowly. By using strong solutions and allowing considerable time the more distant relationships appear, the proximity of the relationship accepted by zoölogists generally being proportionate to the rapidity and strength of the reaction. Applied to man and the Simiidae the serum tests show a close blood relationship between anthropoid apes—gorilla, chimpanzee, orang-outang, gibbon—and man, the Old World monkeys coming next in similarity of reaction, then the New World monkeys and the marmosets, the latter two groups showing only slight reaction, the blood of lemurs showing no indication of blood relationship. These degrees of blood relationship correspond with the degrees of morphological or structural relationship between man and the respective groups of Simiidae and Lemurs. In spite of an immense lapse of time, in spite of divergent fortunes, the blood of a common ancestor still flows in man, the higher apes, and, in more diluted form, the Old and New World monkeys.

RECAPITULATION

A century ago von Baer called attention to the resemblance between embryos of different species of animals, a resemblance greater than is found in the mature members of those same species. Resemblance between embryos is greater among species closely allied than among those not related, or only distantly related. The earlier the stage of embryonic development the greater the similarity. At an early stage of development there is little difference between the embryos of a whale, a pig, and a man; with growth the differences increase and, in most cases, continue to increase after birth until maturity.

This increasing resemblance between species as we trace back into embryonic life the origin of the individual is accepted by many biologists as a record of the evolutionary history of the species. As individuals originate and develop through initial stages in much the same way, so, many believe, species have descended from a common ancestor, evolving slowly their present distinctive characteristics.

It has been alleged, therefore, that man's antiquity is recorded in his recapitulation of the qualities of his phylum, or remote ancestors. Ontogeny, the development of the individual, recapitulates phylogeny, the development of the race, and the development of the individual is regarded as an epitome of the evolution of ancestors. Some, like Haeckel, regard recapitulation as caused by ancestral influences. Others look upon it as, by chance, reflecting ancestral history, but not caused by ancestral conditions. In any case, the parallelism in development during embryonic stages challenges attention. The individual develops from an undifferentiated amorphous cell-compound creature into a more differentiated organism which represents *seriatim* the various forms of life through which our animal ancestors are supposed to have passed during long millennia when proto-man was being slowly and painfully evolved. The first form of the embryo, supplanting the amorphous cell aggregate, is a form like the cœlenterate; then one resembling the worm; finally fishlike, then mammalian; and ultimately, distinctively human characteristics appear. One of the indications of the fishlike existence is the appearance of the so-called gill slits in the human embryo. These later disappear, though one pair of them gives rise to the Eustachian tubes which lead from the throat to the inner ear. In some individuals the places where they have closed remain visible in the form of scars on the side of the neck.

Another striking characteristic of human embryonic development is the lanugo, a hairy coat which at about the seventh month of pre-natal life covers the entire embryo, subsequently being absorbed. In some cases—typical Esaus—the hairy coat of the lanugo persists until birth and even throughout life. Its presence is explained as an inheritance from apelike ancestry.

The change in proportionate length of upper and lower limbs as the embryo develops, as well as during post-natal life, is in keeping with the recapitulation hypothesis. In earlier human embryonic development the arm is longer than the leg, as in adult apes; later the two members are of equal

length; then the leg outstrips the arm in relative length. After birth the child develops length of leg with more rapidity than length of arm. When it begins to walk the disproportion becomes more marked, the increase in relative length of leg proceeding until about the fifteenth year of life. The differ-

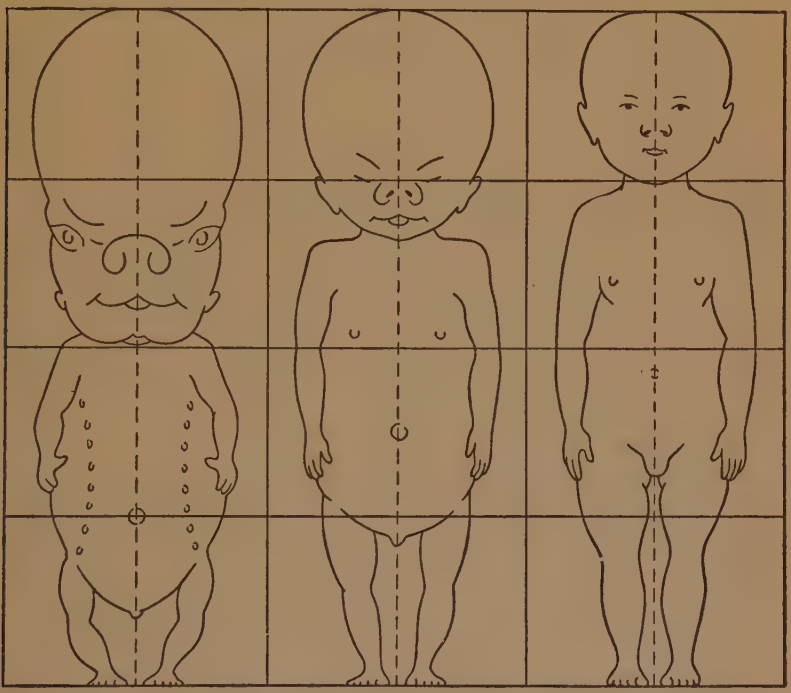

FIG. I.—BODY PROPORTIONS OF THE HUMAN INFANT AT TWO MONTHS OF PRE-NATAL DEVELOPMENT, FIVE MONTHS OF PRE-NATAL DEVELOPMENT, AND A MONTH AFTER BIRTH, RESPECTIVELY

Note the increase in proportionate length of lower limbs, proportionate length of trunk of body, and proportionate length of upper limbs. Meanwhile proportionate size of head decreases. At two months of pre-natal age the height of head is approximately equal to the length of the remainder of the body, whereas a month after birth the height of head is only a fourth of total stature. Most of these changes continue progressively until adulthood.

ences which come with age may be illustrated by the relative position of the umbilicus. At birth the umbilicus is below the middle point of entire body length. As post-natal growth proceeds, the umbilicus moves relatively upward, until, by the end of the eighteenth month it is the middle point of body

length. At the age of fifteen years it is well above the middle point, which now is in the region of the pubic symphysis. In this respect the male advances from simian type farther than does the female, for the lower limbs are relatively longer in the male, the female having a relatively longer trunk. Thus in the relative proportions of arm and leg the baby is more of an anthropoid than are its parents, they being farther along in the path of recapitulation.

There is also a similarity in the curvature of the vertebral column of the human embryo and that of the adult ape. The characteristic human sigmoid curve does not appear until the child has learned to walk. A trait suggesting arboreal life of the child's remote ancestors is the power of grasp which it has at birth. Infants an hour old can support themselves by their grip for about a half-minute. In this position the lower limbs are drawn up at nearly a right angle to the body, strongly suggestive of the posture of an adult monkey. Even the creeping stage of the child has been considered evidence of ancestral gait.

That children are lulled to sleep by rocking because this awakens memories of ancestral life in the tree tops is fanciful; as also the suggestion that our dreams about falling go back for their cause to real nightmares when our ancestral monkey-like arboreal self was in actual danger of toppling in the darkness to the ground.

Perhaps some of the characteristics of the embryo cannot be accounted for on any other hypothesis than that of ancestral influence, but many resemblances found in embryos of different species may be otherwise explained. They have a similar origin, a union of cells, and develop of necessity in a similar manner, by fission and growth. They aim at a similar goal, the mature individual, and they move toward this goal through a similar environment. The greater the similarity in the environment and in the goal, the greater the similarity in embryonic and also in post-natal development. Much of the similarity in embryonic development follows from the conditions imposed by uterine life and would result as surely from a separate creation of species as from an evolution of all

species from a common parent. In any weighing of the import of the similarities in embryonic forms of different species due consideration must be given the similarity in environment, goal, and the processes inherent in ontogenetic development.

As Keith points out, in many respects man has come by his distinctive characteristics by "retaining throughout life conditions which are present in apes during their fetal stages." [1] This would seem to imply that the anthropoids are recapitulating human ancestry.

DYSTELEOLOGIES

In the human organism are portions which seem useless now, but which, we infer, once served a purpose. Nature develops few things of which she has no need, yet, having acquired them, cannot get rid of them forthwith when the need is satisfied but allows them to linger in a kind of innocuous desuetude.

An organ or a portion of an organism which appears to fulfill no purpose is called a dysteleology. To a superficial observer, one of the things which most markedly distinguish the apes from man is the presence of the hairy coat in the former and its absence in the latter. Occasionally, however, this persists beyond the embryonic stage into adulthood. In the normal individual there are short hairs over the entire body surface, though they appear to serve no useful purpose now. At their roots are muscles similar to those which elevate the hairs of the ape, though in man these muscles, presumably through long disuse, have become functionless. The conformation of body hair is practically the same in man and in apes. The hair on our arms is evidence of simian relationship. On the lower portion of the upper arm the hair points outward and downward, while on the upper portion of the back of the forearm it points upward toward the elbow. This is exactly its conformation on apes (though not on lemurs). For them the conformation serves a useful purpose. The ape sleeps with its hands folded over its head in such a way as to protect it from the rain, the hairs serving as a drain

[1] Sir Arthur Keith, *The Antiquity of Man,* ii, p. 411. 2d ed. London, 1925.

which turns aside the water from its body. The similar conformation of the hair on man is his unwitting testimony of collateral relationship with the apes. Over most of the surface of his body the conformation of the hairs is nearly identical with that on apes.

The ear, in shape and in unused muscles, is further testimony of the antiquity and the simian relationship of man. The elongated ear of the ape, accentuated in the lower apes, is not present, but the tip is represented in the inner fold of the ear and in that apelike upper posterior point occasionally found in man and known as "Darwin's point." In the lower monkeys the ear can be turned, the better to catch sounds. In man this power, excepting in a few individuals, is lost, although muscles designed to move the ear are still present. When man assumed the erect posture and acquired a head nicely balanced on his vertebral column he revolved his head to catch sounds and eventually ceased to move his ears.

At the inner corner of the human eye is a crescent-shaped fold which now serves no purpose in the mechanism of that delicate organ. Among some of our remote ancestors it had a useful purpose. With them it was a nictitating membrane, serving as a third inner eyelid, such as the shark possesses.

On many parts of man's body, particularly along the neck and the adjacent portion of the back, are unused skin muscles. In the apes, as in many other animals, these move the skin and discommode flies and insects. Yet even in mosquito-infested districts man is now without this useful muscular control.

Man's appendix is tragic evidence of the dysteleology of an organ persisting after a new mode of life has rendered it useless. It is of large size among the apes, in which species it gives, so far as we are aware, no discomfort. Its previous use in man may have been associated with his herbivorous diet, and the taking of food in larger if less digestible quantities.

As for the tonsils, it is plain enough that they now can be dispensed with. The useful purpose they once served no longer exists, or is feeble, and is more than counterbalanced by the trouble they cause.

Transformation is under way in the oral region. The rapidly diminishing jaw is crowding the teeth, which change less rapidly than the spongy alveolar region in which they are imbedded. In many jaws there is much decay of teeth as a result of the overcrowding and of the softer foods which man, the cooking animal, has come to use. The teeth, meanwhile, are diminishing in size, though not with sufficient rapidity. This is most evident in the third molar, or wisdom tooth, the largest in the gorilla, but in man the smallest of the molars. In modern man of European civilization the wisdom tooth is diminishing in size, even disappearing: not infrequently some or even all of the wisdom teeth fail to put in an appearance, or postpone arrival until the victim is fifty or even sixty years of age. Degeneration is evidenced further by the fact that often the wisdom tooth is decayed before it cuts its way through the gum; and because of its diminishing size frequently it fails to occlude with the opposite wisdom tooth, being, in consequence, of little or no assistance in mastication. Keith says that wisdom teeth have entirely disappeared from the jaws of twenty per cent of English people, "not even a rudiment being formed." [1]

More than a hundred dysteleologies in man's organism have been counted. He is, indeed, a walking museum of antiquities, carrying around with him abundant testimony of better—or worse—days, testimony of a varied career which, literally and figuratively, has left its earmarks indelibly ingrained.

Many of the abnormalities which appear now and then in some human being are explained as the recurrence of traits characteristic of man's ancestral structure, traits which he has lost save for these haphazard recurrences. The occasional appearance of the hairy coat has been mentioned. Among other traits which appear as abnormalities and are interpreted as a harking back to ancestral structure may be mentioned the inter-maxillary bone in the skull, supernumerary teeth, and supernumerary mammæ. A fourth molar tooth has been found posterior to the third molar, occurring occasionally in Australians, New Caledonians, negroes, and Europeans. Its

[1] Sir Arthur Keith, *The Antiquity of Man,* ii, p. 401. 2d ed. London, 1925.

occurrence seems to be associated with the posterior obliquity of the ascending ramus, a characteristic pronounced in the mandibles of Australians and negroes. Such a fourth molar occurs normally in lower species of simiæ, and a third premolar has been noted in the chimpanzee, though normally the higher apes have but two premolars. Probably, however, we should not view these plural teeth as reversions, but as due to an early division of the developing molar or premolar, as the case may be. Thus the entire set of four molars is homologous to the normal three, no one of them being the supernumerary tooth, the entire series being a functional unit. No doubt many abnormalities must be explained ontogenetically rather than as a harking back to ancestral traits. Even so, in its normal make-up, man's structure bears evidence of his great age and of his kinship with other members of the animal kingdom, especially of his close relationship with the manlike apes.

HOW MAN DIFFERS FROM APES

Whatever occasioned the divergence in the manner of living, important differences, based on this divergence, or closely correlated with it, are observable when we compare the structure of the two species, man and ape. The skeleton of the ape is shorter and of heavier bony tissue. In the ape the vertebral column, the oldest and most fundamental portion of the mammalian skeleton, has one long forwardly concave curve. In man there are compensatory curves, the S-shaped curve, known as the sigmoid curve. The spinous processes at the back of the cervical vertebræ stand out more prominently in apes, being needed as points of attachment for the muscles which assist in supporting the head in position at the top of the vertebral column. In apes the depth of the posterior portion of the body of the vertebræ is in excess of that of the anterior portion to a greater degree than in man. Similarly, the sagittal and the transverse diameters are differently related to each other, in man and ape, respectively, the sagittal diameter being relatively greater in the ape. This is in keeping with the greater proportionate length of the vertebræ in

apes. In the coccyx, the lower extremity of the vertebral column, the bones are narrower in the ape than in man. They are also more concavo-convex, and taper less from above downward. The ribs, attached to the vertebral column, are but an adjunct to it, assisting the axial skeleton to support the added weight falling to its lot as a result of the fuller development of the vital organs—the respiratory, circulatory, and digestive organs. The most noticeable differences in regard to this portion of the skeleton are the greater sagittal diameter, in proportion to the transverse, in the thoracic region of the skeleton of the ape, and the narrower manubrium and sternum of the ape. In the appendicular skeleton the most notable differences are in the proportions of lower and upper limbs. In the apes the lower limbs are short and stocky. In man they are long and slender. The upper limbs, on the contrary, are long and slender in the ape, whereas in man the ends of the fingers do not reach the knees. The shafts of the long bones are more curved in the apes, and the protuberances at the ends of the shafts are more pronounced.

The calcaneum, the posterior bone of the foot, the heel bone, is more elongated in apes, and the differences between the bones of the hand and those of the foot are not so great in apes as in man.

There are significant differences also between the skull of man and that of the ape. In general appearance the skull of the gorilla, for example, is rougher, has a more rugged outline, greater bony protuberances, is more "savage" in appearance than is that of man.

If we observe more closely, the general impression of savageness is confirmed at many points. Surmounting the skull of the male gorilla, like the sagittal line of a peaked bonnet, is a bony crest, the sagittal crest. The brow ridges are high and project forward, overshadowing the face. The cheek bones, or malar bones, are outstanding and rugged. The nose is low and broad and has no spinous process across the base, such as is found in man. The anthropoid broad nose with large apertures is in striking contrast with the more outstanding aquiline nose of man. The skull is small, low, massive. The

Fig. II.—Man and the Man-like Apes.

Figure II shows of man and the man-like apes, the relative stature, man being the tallest of the group and the gibbon the shortest.

The skull of man is more regular and symmetrical than that of the anthropoids and the cranial vault is much higher. The jaw of the ape is large and projecting compared with that of man, and has no chin prominence.

Note the long upper limbs of the anthropoids, which in the case of the gibbon almost touch the ground, and the correspondingly short lower limbs. Man's greater stature is in large part due to the greater length of the lower limbs. Thanks to his upright posture, man has an irregular S-curved vertebral column, while the anthropoids have vertebral columns with approximately uniform curvature. The long spinous processes on the upper vertebræ of the ape, as notably in the gorilla, provide attachment for the neck muscles which support the weight of the head. In man the head is so nearly balanced on the vertebral column that little pull of neck muscles is needed and there is not much extension of spinous processes. In the ape these are long and large and stand out almost at a right angle to the line of the vertebral column, whereas in man they are short and turn downward, the lower neck vertebræ in man being bifurcated, though they are non-bifurcated in the ape. The support of the head by these neck muscles makes necessary a much larger posterior flat surface on the base of the skull in the anthropoids than is the case in man and this tends to shorten the length of the anthropoid skull in terms of its width.

mandible, or lower jaw, is in keeping with the savage type of skull cap: it is heavy, has a broad ascending ramus and large articular processes.

Compared with the mandible of man, that of the ape is long and narrow, inclined to cut off squarely at the forward, or mentone, region rather than round off like a horseshoe, as does that of man. These proportions, of necessity, are duplicated in the palate, for the contour of the teeth must be practically the same in lower and upper jaws. The teeth of the gorilla are larger and rougher. The proportions also are different in the ape, in whom the teeth have a greater sagittal diameter than do those of man. This is in keeping with the longer and narrower mandible of the ape. There is greater specialization in the teeth of the ape than in those of man. The differences between incisors, canines, premolars, and molars are considerably more marked in the jaw of the gorilla than in that of man. In man the teeth have degenerated, have lost that sharpness of outline which distinguishes the herbivorous and hardier apes which still live in trees and feed upon tough vegetation. The long canine is considerably abbreviated in man and does not stand out prominently and threateningly as in the jaw of the gorilla; although Darwin has remarked that man can scarcely sneer at the theory of evolution without showing under his upturned lip the canine that proclaims his anthropoid relationship. With the diminution of the canine in man the diastema, the space between lower canine and premolar, and upper canine and incisor, into which the opposing canine fits, has disappeared, to reappear only occasionally in some aberrant type and then only in a modified form merely suggestive of the condition which, presumably, once was normal.

The similarity between hands and feet of man and those of the ape is far-reaching. Not only is there a general likeness, but even in such details as the patterns of lines on the palm of the hand and on the sole of the foot there is a striking likeness. Specialization in these respective members has not proceeded so far in apes as in men.

HOW MAN MAY HAVE ACQUIRED HIS CHARACTERISTICS

We have spoken of the manner in which man resembles the apes in skeletal structure and somatic characters, and in embryonic and post-natal development. We shall now indicate how these respective similarities and differences may have come about, assuming that man and the apes are congenitally related and have diverged from a common stock. It then remains to inquire how man's present characteristics may have developed.

The higher apes (with the exception of the gorilla) are still arboreal, whereas man is a land-dwelling animal, although the former sometimes come to earth and men sometimes live in trees. Some savages, indeed, as notably in the Malay Peninsula and in Polynesia, have a remarkable facility in climbing trees. The Kedah Semang, of the Malay Peninsula, run up trees for several yards by putting the sole of the foot against the trunk and their arms around it, and the Sakai can climb "like monkeys."

But, as suggested, it is sometimes disadvantageous to be perfectly adapted to the environment, for this leads to inertia as the necessity for exertion pales. Fortunately, man did not accept that complete adaptation to environment which characterized his arboreal cousins and condemned them to protracted habitation in tree tops. The apes have remained four-handed, quadrumanous. In the case of the New World monkeys, so perfectly adapted is the tail to grasping and tactile functions that these animals are virtually five-handed. "Yet in this multiplicity of hands there is no evolutionary gain. The true hands lose some of their perfections in this sharing of their duties by other members, and the animal becomes so much a perfected arboreal acrobat, that advances in any other direction are well-nigh impossible." [1] Man's ancestors may have done a good thing for themselves when they sought shelter in trees from the larger and fiercer animals with which they could not successfully cope in the latter's own environment. Some failures are blessings in disguise. Perhaps, to vary the

[1] F. Wood-Jones, *Arboreal Man.*

sentiment of the timid Greek poet-warrior, they decided that he who fights and climbs straightway may live to fight another day. However that may be, man's ancestors did a good thing for us when they climbed down from the tree tops, whatever their reason for forsaking that habitat, and took up a more precarious abode on the ground. When the curved ape became the upstanding man the latter's supremacy was insured. Man was destined to become the lord of creation, monarch of all he surveyed, and he could now survey his territory more comprehensively. Upright posture increased his field of vision and brought into fuller use those sense organs, the eyes, which have played an important rôle in human evolution. It enlarged his visual horizon and at the same time was destined to enlarge his mental horizon. There is much truth in Robert Munro's statement that the development of man was completed with the turning of an ordinary quadruped a quarter of a circle into the vertical plane. Not the least important thing which the erect posture accomplished in man's behalf was to leave free for other uses than those of locomotion the arms and the hands. Freeing the hands from the necessity of assisting with the support of the body released a source of potential energy. He could now face a foe and have two arms free for the combat. That was no small gain over fighting with two of four feet. When man dared to stand erect he became more formidable.

THE HAND

"A brain worker has a brain because his ancestor, that blue-faced, grimacing, arboreal apparition, had a hand—a small, black, sinuous hand—with an opposable thumb. It picked things up and gazed intently at them in its shifty, nervous way—dropped them, picked them up, took apart anything that would come apart, and then put it together again. Got a stick and dug a hole with it; got a stone and beat nuts with it; tied the stone to the stick, and was electrified by the results. And so, painfully, agonizingly, while geologic ages crept by —under the same sun, moon, and stars that light us on our

confident way, our poor ancestors' hands built your nest and mine, O complacent One!" [1]

The upright posture left man free to develop the muscles of the hand. His civilization, as language records, began with the development of manual dexterity and with the handicrafts which his facile grasp made possible. His hand was his manual of labor. The conditions which obtained when man dwelt in the trees were reversed, legs being relatively of more importance for stride than were arms. The legs lengthen,

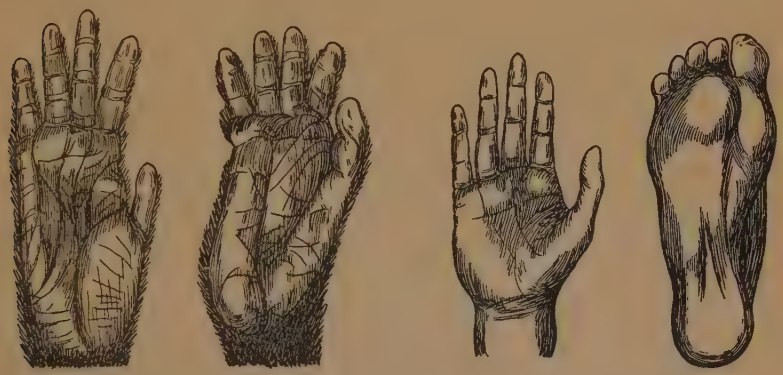

FIG. III.—THE HAND AND FOOT OF ANTHROPOID APE AND THOSE OF MAN.

To the left the hand and foot, respectively, of a chimpanzee compared with the hand and foot of man. An examination of these will show that while the hand of man is the hand of an ape, the foot of man is not the foot of an ape. The ape's foot is really a hand—that is, is adapted for grasping (prehension), rather than for walking (locomotion). This entitles the apes to rank as quadrumani (four-handed).

measured by the length of the arms, the converse being that the arms become shorter in respect to the length of the legs. Greater length of lower limbs has aided man, giving him greater stature and longer stride.

The mobility of the fingers is much greater in man than in apes, whereas that of the toes is considerably less. Function is correlated with structure and utility. The lengths of the respective fingers correspond in their gradation in man and ape, but the gradation in the lengths of the respective toes is not the same in man as in ape. In man the big toe usually

[1] Quoted in Harry L. Miller and Richard T. Hargreaves, *The Self-Directed School.*

is the longest as well as the largest, though in length sometimes outstripped by the adjoining or second toe. In the gorilla, on the contrary, the digital formula for the foot is the same as for the hand, namely, $3>4>2>5>1$, the gradation from the longest to the shortest being in the order given. That is, the third digit is longest, the fourth digit is next in length, the second digit is next, the fifth digit is next in length, and the first digit is the shortest.

The right humerus of Neanderthal man, the oldest of complete skeletal finds, is larger and heavier than the left, indicating right-handedness. Though left-handed individuals probably are not unknown to any culture group, a tendency toward right-handedness is a human characteristic. All peoples have become specialists in the use of the right hand, individuals who have specialized in the use of the left hand being exceptions. This applies to all peoples at all periods of history.

The only plausible explanation suggested is that right-handedness is associated with development of speech centers, the brain centers which control the organs of speech being close to those which control the movement of the right arm and hand. Nerve stimulations bring larger supplies of blood and the area of right-handedness, which is in this portion of the brain, is stimulated.

That this supposed explanation is the correct one is suggested by the fact that the left parietal bone is larger than the right in most cases, an asymmetry which develops during growth and is not present in prenatal stages or in infancy. It is a characteristic of the La Chapelle (Neanderthaloid) skull. The left parietal bone develops beyond the right when speech is a factor of mental life, but not in the pre-speech stage, nor in apes. Monkeys show no preference for the use of one hand rather than the other, being neither left-handed nor right-handed.

Cunningham found that the eighth rib is a true sternal rib more frequently in males than in females, and is located more frequently on the right side than on the left. He suggests that this is due to right-handedness, which tends to raise the rib and make its direct articulation with the sternum easier

and more advantageous. The tendency would, therefore, be more marked in males, in whom there is more muscular development.

Biervliet has alleged that remote asymmetry is associated with right-handedness and with left-handedness, such, for example, as the greater diameter from root of nose to auditory meatus on the right side in right-handed as contrasted with left-handed individuals, the latter showing converse characteristics, there being little difference in the respective diameters in the case of the ambidextrous. However, as his data include only five right-handed, two left-handed, and seven ambidextrous individuals, the evidence is not sufficient to substantiate his conclusions.

Indeed, the whole matter of bilateral asymmetry deserves a thorough investigation. Some anatomists now question the assertion that the left side of the brain is larger or heavier than the right, though there is no doubt about the tendency for the left parietal bone to exceed the right in size. But it is not clear that right-handedness can account for this asymmetry if the left lobe of the brain is no larger than the right.

THE FOOT

In man the foot, the basis of locomotion, has undergone a specialization which has led to marked divergences from the type of foot found in the ape. In the ape the foot turns inward, and in climbing the sole is easily adapted to the trunks or the limbs of trees. The ape, consequently, walks on the outer side of the foot. That man's ancestors did so is indicated by the fact that infants turn the feet in as do apes, that the outer bone of the foot ossifies first, that the child walks first on the outer portion of the foot, and is therefore inclined to be pigeon-toed and to wear off the outer sole of the shoe first. The shifting of the weight to the inner portion of the foot often results, in adults, in flat-foot, due to the breaking down of the arch under a weight which it cannot support. This frequent breaking down of the arch suggests that man has not long walked in the erect posture, else his organism

would be better adapted to it.[1] The specialization which is going on in the foot, leading to overdevelopment of the big toe, suggests the example of the horse, which has become better adapted to standing, in spite of the degeneration of all the toes except one. "Zoölogically speaking, we may say that the very useful and specialized foot adapted for terrestrial progression is a foot of few digits. The evolutionary stages by which the horse has come to stand solely upon its third digit are well known. Similar processes produced the two-digited foot of the deer and of the ostrich. There can be no doubt that Man is trusting, not to his third digit, but to his first, and all the others are undergoing the process of comparative atrophy." [2]

OTHER CHARACTERISTICS

We have referred to the differences in sagittal and transverse diameters of the thoracic and visceral regions of the ape and man. These may be attributed to the assumption by man of the erect posture and the readaptations which it calls forth. The pelvic region has broadened and the iliac bones have flared out to support a weight not so directly dependent upon them in the stooping ape. The diameters in the thoracic and in the visceral regions have changed, the weight of the intestines and internal organs being now supported in a different manner. The changes in the vertebral column are in keeping with the new duties which fall to it when man assumes the erect posture. The compensatory curves give an elasticity and wiriness to the vertebral column which is advantageous to a creature who walks erect and has ceased to swing from bough to bough by overhead hand-grasp. The posterior vertebral spinous processes of the neck region have diminished in man, for in the upright position less head weight is supported by muscular pull. The head, now carried erect, does not need

[1] But this is not necessarily the explanation. An increase in body weight, walking in a more upright posture, less use of the feet, and the custom of turning the feet out, which is practiced only by civilized peoples, might account for the breaking down of the arch. There is a considerable amount of maladaptation in our teeth, for example, but one does not infer that this signifies we have been using teeth only a little while.

[2] F. Wood-Jones, *op. cit.*

those braces to the cervical region of the spinal column which are necessary in the ape as in all animals which do not carry the head erect. A greater mobility characterizes the vertebræ in man, this being especially evident in the cervical region. Thanks to this mobility, man can rotate his head easily on almost any plane.

The assumption of the erect posture has contributed to certain changes in the shape of the skull. The head of man is not flattened posteriorly, as is that of the gorilla, being protuberant and less angular. The large muscles necessary to support the weight of the head of the gorilla are not needed by man, whose head is almost balanced upon the axial vertebra, hence there is little posterior pull against the skull. Neither do the jaws of man demand such large forceful muscles. The lateral compression of temporal muscles is absent, and man's skull increases in width. The articulation of the skull with the first vertebra is different in orthograde and pronograde. "In pronograde quadrupedal animals, such as the dog, the head is joined to the vertebral column by condyles situated at the extreme hind end of the skull; the nose is directed forward in line with the vertebral column, and the skull is braced in position by a strong ligament, the *ligamentum nuchæ,* and by muscles passing from the vertebræ to the back of the cranium." [1] There is a different arrangement in animals which are not pronograde quadrupeds; the poise of the head is different and the position of the condyles on the skull shifts. This change is marked in arboreal animals; when the body is held partially or occasionally upright and the eyes and face are directed forward, a new angle is present between the long axis of the skull and face and that of the vertebral column. Such an angle can be produced, if occasion demands, in an ordinary quadruped. Normally a dog carries its head nearly in line with its vertebral column, but if it sits up to beg, head and neck are bent so that eyes and face are directed forward, the head then resting at right angles to the line of the vertebral column. This is the habitual position among the arboreal Primates; the trunk frequently is more or

[1] F. Wood-Jones, *op. cit.*

less upright and this position induces a shifting forward of the condyles. That this change is brought about by posture is suggested by the fact that the quadrupedal baboons (*Cynocephali*) do not show this feature markedly, though it is a characteristic of their arboreal allies. In most monkeys the occipital condyles are situated well forward on the base of the skull, being still further forward in anthropoids. In man the head is almost balanced on the first cervical vertebra, the axial vertebra.

The facial portion projects forward much less in man than in apes, the portion of the skull cap containing the brain, the cranium, being relatively more prominent. The recession of

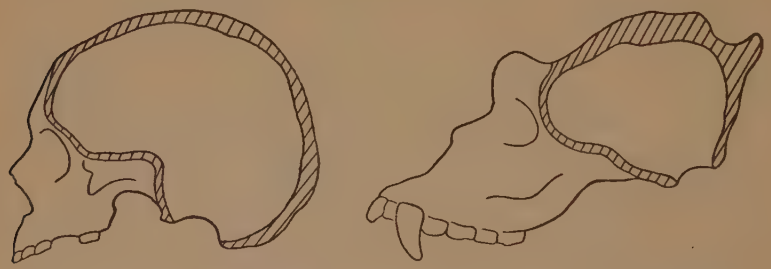

FIG. IV.—OUTLINE OF A HUMAN SKULL COMPARED WITH THAT OF A GORILLA.

In man the facial region is much less than in the gorilla and the angle of facial projection is much less. The brain case of man is proportionally larger. The nasal bridge in man projects markedly, whereas in the ape it more nearly approximates the line of the face. Note the long canine of the ape.

the "snout" region has been attributed in part to the manner in which man takes his food. Animals which take food simply with the mouth, without the aid of the forepaws, have long protruding snouts. Witness the dog, cow, horse.

Similar differences are observable within the Primates. Man's hands did not save his face, but rather foreshortened it. When he learned to reach for his food with his hands instead of reaching for it with his face, the face remained passively if not patiently in the background, and has been retiring ever since. Another process which has aided greatly in reducing the prominence of the face is found in the diminution in size and number of teeth. Man has acquired smaller teeth and has less of them. Accompanying this diminution in teeth

is a decrease in size of jaw. Diminution in size of jaw has proceeded more slowly than diminution in size of teeth, so that the dentition shows much overcrowding. Along with reduction in size of teeth and with recession of the alveolar processes in which they are imbedded, there is a relatively forward projection of the heavier bony tissue which underlies the alveolar region.

The jutting forward of the middle portion of the lower jaw, the menton region, has given rise to the prominence known as the chin. The Chinese have some basis for saying that ghosts have no chins; as we recede into the ghost-land of our ancestors, chins shrink in the dim ancestral past, vanishing entirely when we encounter our older cousins, the manlike apes, or even Heidelberg man or Neanderthal man.

The nose of the ape is scarcely noticeable, save for the large low orifices, whereas man's nose has jutted forward until now it is one of the prominent features of the face. Perhaps man depended less on the sense of smell and in consequence has a smaller nasal orifice; or perhaps it is largely a matter of climatic differences. The lowest, broadest noses among men are found in tropical humid climates, the narrowest noses being those of the peoples of dry cold climates. The size of nasal aperture is a function of temperature and humidity, being more closely related to temperature than to humidity. Decrease in facial prominence and elevation of nasal bones lead to change in position of the sense organs. An animal with an elongated snout region has a long face with an eye situated on each side; when the snout region recedes, there results a flat face with two eyes to the front. The two eyes are turned to the front by the shrinking of the intervening snout or muzzle. When the eyes take up a forward position a bar of bone is formed behind them, intervening between them and the space at the side of the skull over which the muscles of the jaw lie. The separation of orbit from temporal fossa can be seen in the tree shrews. In *Tarsius spectrum* (so-called from the spectacle-like orbits) the separation is complete and the facial region is short. In other lemurs the orbit and the temporal region are closely connected.

Erect posture, involving changes in the respiratory system, brings a broader chest, and permits the employment of the arms in new activities. When in dire need of freer respiration man goes back to the apelike posture. He takes up a quadrupedal position in order to bring the primitive external respiratory muscles into effective play: witness the "blown" runner grasping his knees with his hands, fixing his fore limbs, as well as curving anteriorly his vertebral column. A patient with embarrassed respiration, gasping for breath, bends over the back of a chair, functioning for the time being as a quadruped. Arboreal life gives the Primates flat chests and flat backs, brings about a greater degree of dependence upon the diaphragm as a mechanism of inspiration, while the muscles of the external respiratory system reinforce the mobility of the fore limbs.

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CHAPTER III

PLACE OF ORIGIN, DISTRIBUTION, AND PHYSICAL TYPES OF MANKIND

"The number of the dead long exceedeth all that shall live. The night of time far surpasseth the day, and who knoweth when was the Equinox."—SIR THOMAS BROWNE.

"The appearance upon the earth of the *genus homo* is open to vain conjectures, as is his affinity or relationship to the animals."—BENEDETTO CROCE.

THE favorite cradle of the human race is the southern part of Asia or the Central plateaus of that continent. The theory that man originated in Asia is based on the supposition that his evolution was associated with the disappearance, or at least with the deterioration, of the trees, which previously (presumably) had been his dwelling-place.

But the assumption that the area of the oldest civilizations known to us must be the area in which man originated is not acceptable. More importance attaches to the area of origin of the higher apes, man's nearest relations. The place of origin of the anthropoid apes, then, suggests the area of the origin of man. As this is in the Old World, there is the likelihood that man, too, originated in that continent. Moreover, the oldest human skeletal remains come from the Old World, there being no undisputed evidence that man was in America before the last glacial period. On the other hand, there is abundant evidence of the great age of many of the European and some of the Asiatic and African human remains. The area of the Old World is the habitat of the anthropoid apes and of older species now extinct, such as *Dryopithecus, Pliopithecus,* and *Propliopithecus;* a tooth found in Nebraska deposits, attributed to a species of prehistoric ape,[1] is the only evidence that a species of ape akin to Old World forms once existed in the New World. The Old World is thus the area of origin

[1] G. Elliot Smith considers it more human than anthropoid.

of man's nearest zoölogical kin. More than this we cannot say. The place of man's origin is not known to us and probably never will be ——

> So silent is the place and cold,
> So far from human ken.

South Central Asia will serve—as well as any other part of the world—as the presumed place of origin. From here may have spread numerous divisions of mankind, going out with varying drives in all directions to people the earth. Man probably reached America by way of Bering Strait. But until more evidence is forthcoming, there can be little value in plotting the probable course of man's distribution from an assumed area of origin. The earlier linguistic arguments, pointing to India as the center of dispersion of the Indo-German peoples, have ceased to have the evidential value once attributed to them. A language can migrate while the peoples who are its vehicle retain their respective abodes; or language may move in one direction while the people who speak it set off in another. To trace the source of European languages to Sanskrit is not equivalent to tracing the home of Indo-Germanic peoples to India.

So far as human remains justify inference (and these must be our criterion), "the conclusion warranted by our present evidence would be that the various peoples who can be grouped together as members of the Yellow race all probably originated in Asia, and it would appear in its northern part. The suggestions of Mongoloid man in Europe in Paleolithic times have not as yet been substantiated.

"We know nothing at present about the origin of the Negritoes, and cannot say whether they came from Africa, which would seem unlikely, or whether, which is more probable, they are Asiatic in origin. There is not at present any definite evidence, as far as I am aware, which would claim our belief that the Negroes originated in Asia. Any theories that may be put forward on physical grounds must remain at present pure conjectures.

"The outcome . . . then, is for the most part purely nega-

tive. We cannot speak, for lack of evidence, of ultimate origins. It seems probable that the Yellow races, and at least one branch of the White race (the Nordic), have had their center of dispersion in Asia, but in what locality it is impossible at present to specify." [1]

As De Morgan says: "Every invasion of the West in historical times seems to have been launched from the north and center of Asia, when the world still presented very much the same physical appearance it does to-day, but we cannot tell what its contours were in prehistoric times. Many authors have indulged in hypotheses relating to the cradle of the different human groups. They have given to the Aryan-speaking peoples as their birthplace first the Altai, then Transcaucasia, then the plains of Russia and Siberia; they have made those who spoke the Semitic tongue come from Arabia; in brief, every possible supposition has been made, but many of them are absolutely gratuitous, because the story of Man's distribution on the earth depends on a number of elements of which we know little. Prehistory is still surrounded by too many mysteries to entitle us to approach scientifically the great problems connected with the place of origin of our species." [2]

During the glacial periods the northern part of Europe and of Asia was covered by sheets of ice which made those portions of the land uninhabitable, and glaciers from the Persian plateau and the Caucasus were moving toward the north, inundating a considerable amount of territory in southwestern Asia. Between these southern thrusts of the northern glacier and the northern thrusts of the southern glacier was the great Aralo-Caspian lake, covering the depressions about and in the region of the present Black and Caspian seas. As a result the peoples of Asia were effectively cut off from Europe, and *vice versa*.

[1] L. H. Dudley Buxton, *The Peoples of Asia*, p. 83. New York, 1925. Boule suggests the Trans-Ural region as the origin of the Nordics, and he thinks that Nordics, or Pre-Nordics, existed in Magdalenian times. Giuffrida-Ruggeri and Fleure consider Nordics a branch of the Mediterranean group. *Ib.*, p. 77.

[2] Jacques De Morgan, *Prehistoric Man, a General Outline of Prehistory*, pp. 21-22. New York, 1925.

THE EARLY MIGRATIONS OF PEOPLES

Man has been migratory for thousands of years. The succession of types in prehistoric burials indicates that in paleolithic times Europe was invaded by more than one people. In neolithic times invasions became increasingly frequent and they continued throughout the period of recorded history.

In Britain a long-headed people were driven out by short-heads. Celts were displaced by Romans; both were dispossessed by Saxons, Angles, Danes, and Jutes. On the continent there were extensive invasions of various Germanic peoples who came from the east and penetrated to the Atlantic, the Vandals swinging southward into Africa, crossing into Italy, and re-entering Europe from the south. Later came the Huns, pushing the neighboring Germanic peoples farther to the west, while the Slavs settled down in eastern Europe. These were succeeded by Arabs and Turks, both of whom penetrated Europe and threatened to overwhelm the civilization of that continent.

Something similar to what has happened in Europe in historic times no doubt has taken place on a smaller scale in many of the lower cultures. There is reason to believe, for example, that various African tribes have moved from place to place. The Bushmen, we know, have been driven from one locality to another by the more powerful Kafir tribes of South Africa. Polynesians have traveled from island to island by long and circuitous routes. The American Indian, likewise, has gone from place to place, not only after the white man came to make life a burden for him, but also before that, when they contended among themselves for the possession of coveted territory or for rights to hunting grounds. The Eskimos, living along the edge of Greenland and the northern littoral of America from the Aleutian Islands to Labrador, have shifted from place to place in one long intermittent migration in which travel involved little change in environmental conditions. "The control of migration is due mainly to geographical conditions. Movements of men, like those of fluids, take the line of least resistance, flowing, as it were, in

channels or open areas bounded by barriers. The latter are of variable resistance; thus, if an open area or a valley is densely populated it may offer a greater resistance than a geographical barrier, and the tide of migration would then flow over or along the barrier. Barriers are thus relative and only in rare cases are they insurmountable." [1]

PHYSICAL TYPES

"The monogenesis or polygenesis of the human race is," as Benedetto Croce says, "a desperate head-splitter, open to all conjectures." With one exception [2] contemporary anthropologists accept the monogenetic theory.

Between the extremes of the physical types of mankind there are great differences, but they shade into one another, though imperfectly, through a large number of types more or less intermediate. The extent to which types should be considered distinct is largely a matter of choice. Negroid, Mongoloid, and Caucasoid constitute three large divisions in which most of mankind, perhaps ninety per cent, can be included. If "the greatest curse to the progress of science is a hasty classification based on trivialities," then physical anthropology has long been accursed. There is, it must be confessed, no satisfactory classification of the types of mankind. A people, such as the Australians, may lean, in one characteristic, in the direction of Mongoloids, while in other characteristics they may resemble Negroids. Thus, as Buxton points out with regard to the different racial types in Asia, "The stocks akin to the races of Europe can be distinguished from the other races most clearly by the following characters: Fair or brown hair; but over most of Asia the hair is black and the eyes brown, in spite of different racial affinities. The cephalic index, though sometimes providing a useful guide, is not always of value, as the stocks which we are discussing include tribes which possess the extreme variations in this index of the human race. On the other hand, it

[1] Alfred C. Haddon, *The Wanderings of Peoples.* Cambridge, 1911.
[2] Roland B. Dixon, *The Racial History of Mankind.* New York, 1922.

seems probable, as far as we know at present, that long heads do not occur among the representatives of Yellow man, except as individual cases, and that the means of groups always tend to meso- or brachy-cephaly. Where, therefore, we are uncertain whether a particular group belongs to that race or not, the cephalic index may sometimes form a useful, although not an absolute guide.

"The texture of the hair, while again not forming an invariably good criterion, will often serve to distinguish our first and second classes. The races akin to those of Europe often, but not invariably, have wavy or curly hair; and, though sometimes a mixture between the straight hair and the woolly Negrito may cause a type of wavy hair, this latter is usually quite distinct from the normal wave of the European, or of his kinsmen in Asia.

"Skin color would appear at first sight to be a good guide, but we shall find people who seem to be akin to the White races who have a very black skin, and there are innumerable shades of brown which link up the gaps in between. The absence of any yellowish tinge in the skin is, however, a criterion which will usually distinguish our first and second classes. Stature, nasal index, and other measurements, though often of value in the discrimination of local races, hardly serve when we generalize. If we are really to distinguish the two races we must take a complex of characters, a complex that could doubtless be easily multiplied, but which usually makes itself clear enough, if we consider those which have been enumerated." [1]

A bird's-eye view of mankind shows us: In Africa the true negro, with broad, flat nose, heavy protruding lips, dark skin, curly or kinky hair, little facial and body hair. Other Negroid peoples have similar traits in modified form. The peoples along the western fringe of the northern shore of Africa are Mediterraneans (Caucasoid). The tall shapely Arabs to the east are likewise Caucasoid.

Europe presents a variety of sub-types, though all are Caucasoid. In the north are the Lapps and the Finns, the latter

[1] L. H. Dudley Buxton, *The Peoples of Asia,* pp. 48-49. New York, 1925.

short, heavy-set, blond, with light hair and round heads. The Nordics, whose home is now Scandinavia and the adjoining regions of northern and western Europe, are tall, blond, light-haired, blue-eyed, long-headed. They are usually of a muscular build, with well-marked ridges over the brows among the males, and big bones in both sexes. The Alpine type includes a round-headed darker people, to which some of the Celts belong, as notably the Welsh. The Alpine type predominates in northern Italy, whereas in the Balkan area, in southern Italy, and in Sicily, is a long-headed, broad-faced, short-statured people, the Mediterranean. Asia Minor has a tall, short-headed type in the Armenians, who possibly are of European origin, and a branch of the Alpine race. In India are many types, the best known of which are the tall Caucasian. In Australia is a short-bodied, long-headed people, whose affinities are with the adjoining Melanesians (Negroid). Here and there are peoples who seem distinct and unrelated to surrounding types. Such are the pygmies in Africa, the Malay Peninsula, the Philippines, New Guinea. Perhaps, as Schmidt and Biasutti have surmised, these represent an older substratum of the population, now living in remote and comparatively inaccessible portions of these respective regions. Another divergent type is that of the Ainu of northern Japan, a short, hairy people, supposed by some to be of Caucasian affinity. They were the aborigines of the region when the Japanese invaded the islands. The plateau region of Mongolia and the adjoining territory support the Mongoloid type, merging into the Malaysian of southeastern Asia, and the Polynesian of the Pacific Isles.[1]

American Indians show a striking similarity to Asiatic Mongoloids, though the American type is not uniform. The Eskimos, for example, have large, heavy scaphoid, or keel-shaped, skulls, with high and narrow nose, large orbits and large teeth and jaws, which, combined, mark this type off from that of the other aborigines. In the Plains area the Indians attain a higher stature than in other parts of North America. However, in comparing the Indians as a whole with

[1] Probably only a portion of the Polynesians are Mongoloid.

the rest of mankind such variations are minor, and, for purposes of classification, may be disregarded, so that we may speak of an American Indian type.[1] It is characterized by

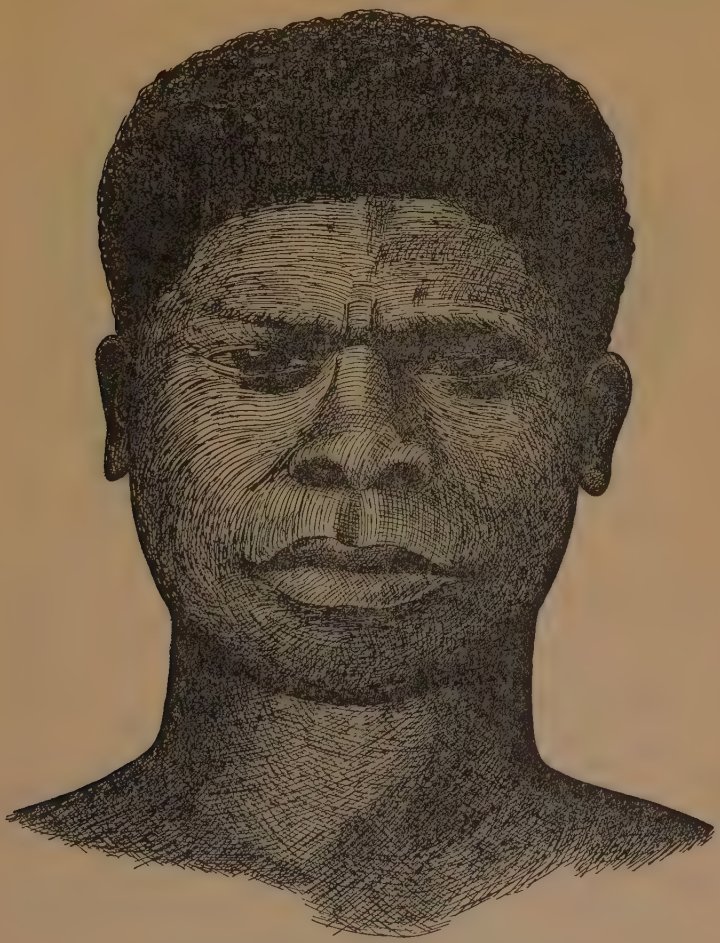

FIG. V.—A NEGRITO OF THE PHILIPPINES.

straight, coarse, black (correctly, brown) hair, prominent cheek bones, and large wide nose, with frequently a slight Mongolian slant to the eyes. The aborigines of the New World usually are regarded as homogeneous, though some

[1] Many physical anthropologists now question the correctness of this older view. See R. B. Dixon, *The Racial History of Mankind*, 1922.

anthropologists insist that the divergences of type are considerable enough to merit recognition of the existence in the New World of distinct sub-varieties of mankind, or at least sub-varieties of the Mongoloid type.

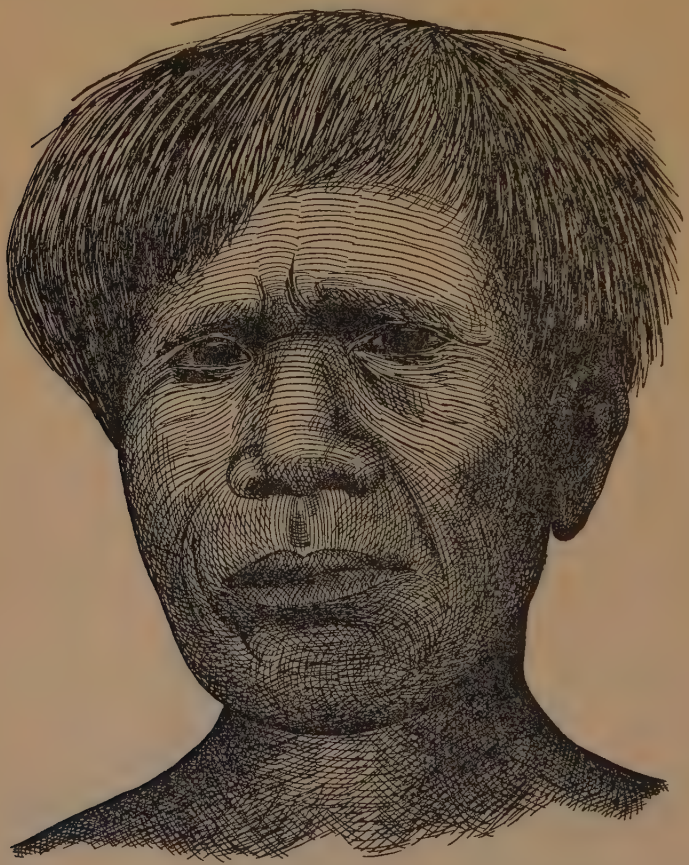

FIG. VI.—AN IFUGAO MAN OF THE PHILIPPINES. A MONGOLOID TYPE.

The depression of the nasal bridge between the eyes and the large flare of the thick nostrils are Mongoloid traits. Note also the straight hair.

In classifying the races, Haddon places most stress on structure of hair and on cephalic index (proportion of width of head to length of head). Next in importance is skin color, stature, proportions of face (of width to height), type of nose (proportion of width to height), and form of eye, as notably in the case of Mongoloids.

His arrangement of the races on this basis gives the following (Ulotrichi indicates woolly hair; Cymotrichi is smooth, wavy and curly hair; and Leiotrichi is straight hair. Dolichocephaly is long-headed, brachycephaly is broad-headed, and mesocephaly is intermediate):

AN ARRANGEMENT OF THE MAIN GROUPS OF MANKIND

Ulotrichi

ulotrichi orientales

Very short, dark-skinned, meso- to low brachy-cephalic.
Negrito (Andamanese, Semang, Aeta, Tapiro).
Short or tall, dark-skinned, dolichocephalic.
Papuan, Melanesian.

ulotrichi africani

Very short, yellowish-skinned, mesocephalic.
Negrillo (Akka, Batwa, Bambute, etc.).
Short, yellowish-skinned, mesocephalic.
Bushman, Hottentot.
Short or tall, dark-skinned, dolichocephalic.
Negro, Nilote, Bantu-speaking Negroid or Bantu.

Cymotrichi

I. dolichocephals

A. Dark-skinned, of short or medium stature.
(a) Platyrrhine.
Pre-Dravidian (Sakai, Vedda, Jungle tribes of South India, Bhil, Gond, etc., Oraon, Kolarian); Australian.
(b) Mesorrhine or leptorrhine.
Dravidian, Hamite.
B. Intermediate shades, of variable stature, black hair, typically dolichocephalic.
Indo-Afghan, Nesiot or Indonesian, Paleo-Amerind.
C. Tawny-white complexion, black hair, medium stature.
Eurafrican, Semite, Mediterranean, (the Brown race).

II. mesocephals

A. Tawny-white complexion, black hair, medium stature.
Pyreneean, Atlanto-Mediterranean.
B. Fair skin and hair, tall stature.
Nordic.
C. Light-brown skin, black hair, medium stature.
Ainu.

III. BRACHYCEPHALS

Sallow or tawny skin, color of hair variable, medium or tall.

Eurasiatic: (1) Alpo-Carpathian (Cevenole; Slav; Pamiri or Iranian); (2) Illyrio-Anatolian (Illyrian or Adriatic or Dinaric; Anatolian or Armenian); Prospectatores; Beaker-folk.

LEIOTRICHI

I. DOLICHOCEPHALS

Brownish- or reddish-yellow skin, generally tinged with red, medium stature.

Eskimo.

II. MESOCEPHALS

Yellowish-brown skin, stature short, medium, or tall.

Palæarcticus or Ugrian or Paleo-Asiatic, Sinicus; Northern Amerind.

III. BRACHYCEPHALS

Skin yellowish white to coppery brown, stature short, medium, or tall.

Turki; Centralis, Tungus or Mongol; Pareoean or Southern Mongoloid; Polynesian; Neo-Amerind; Tehuelche; Northwest Coast Amerind.

RACE CRITERIA

If we approach the problem of race criteria from the zoölogical angle we ask: What groups of men stand nearest the higher apes, man's closest zoölogical relations, in structure and presumably in ancestry? What groups are most removed? What groups are intermediate?

By this standard the Negroid peoples occupy a position distinct from that of Caucasoids and Mongoloids, for the long head, long face with prognathism, large teeth and correspondingly long and large mandible, long forearm and long tibia, give them a more ample measure of outstanding anthropoid traits than is true of any other of the large divisions of mankind. But the difficulty with this method of classification is that perhaps these morphological traits have no zoölogical significance. By this test the child of Europeans is in a class by itself, removed from the much more apelike adult form of parents and elders. The adult female is much further removed from the apes than is the male, the latter having longer head, larger orbital ridges, larger teeth, longer face,

larger and longer mandible, though shorter tibia and shorter forearm. The zoölogical test thus applied is reduced to absurdity, seeing that children and parents do not belong to different races, and brothers and sisters are equally removed from an apelike ancestry, whatever the story of morphological resemblances.

No single morphological trait will serve as a basis for race classification. The long face is found in Europeans as well as in Africans; the narrow nose characteristic of Europeans is, among all mankind, most marked in the Eskimos, a people otherwise "primitive" in cranial and facial characteristics, while in Europeans it is more marked in males than in females. Cranial capacity is an even more unsatisfactory test. Moreover, we do not know to what extent morphological traits are due to inherent ancestral traits—that is, to inheritance—and to what extent they are the result of use and disuse, or are due to changes in other parts of skull or body. A change from tough to soft food, for example, seems to bring about a reduction in size of teeth, which affects the size of the mandible and its forward projection, calling for a reduction of the alveolar region, both upper and lower, a foreshortening of the facial region, and a reduction of facial angle—that is, less prognathism. There is less pull of temporal and masseter muscles, concerned with mastication, the temporal ridge is not so high, the skull receives less lateral pressure and is less elongated. The lessened side-to-side motion in chewing, which is an accompaniment of shorter mandible, brings a deeper and narrower glenoid fossa. Again, the low broad nose is accommodated to warm climate, while the high narrow nose is accommodated to cold climate, and with climate and humidity the form of nose and size of nasal aperture are correlated. Neither is color a satisfactory criterion. In general, color is not of zoölogical significance, though often it is of environmental significance, as notably in protective coloration. It is true that color enables us to distinguish a Negroid from a Mongoloid, a Caucasoid from a Mongoloid or a Negroid, and these differences are inherited through an indefinite num-

ber of generations. But do they possess any other significance?

Keith attributes to the functioning of the ductless glands an influence upon growth and shape of head and face and upon stature. From the importance of the ductless glands in growth he concludes that they are responsible for race differences. But his inferences are based on no recorded differences in the secretions of the respective ductless glands in different divisions of mankind, rest on no observation, and are a guess which remains to be substantiated or disproved, none the less a guess because an ingenious one.

How, then, is one to proceed with the classification of mankind? In whatever manner suits one's purposes, seems to be about the only answer. No harm will be done by any classification so long as it is described and represented for what it really is. To take a characteristic like "long head" and oppose it to "short head" is, however, meaningless. Broca took the convenient percentage 75 to represent "long-headedness" because the equivalent fraction is 3/4, and 80 as another convenient percentage, because the equivalent fraction is 4/5. On this basis long-heads are distinguished from short-heads. A cephalic index of 75 or less indicates a long-head, one of 80 or more a short-head. Many short-heads, therefore, differ from long-heads much less than short-heads differ among themselves, much less than many long-heads differ among themselves. The differences are not a difference; the likenesses disregard greater differences. If some other fraction had been selected by Broca, how different would be our geography of the distribution of long-heads and of short-heads! Many present racial groupings would disappear and new ones would take their place—all because of the change in the numerator or denominator of an arbitrarily chosen fraction.

Only an ensemble of characteristics can be taken as the distinguishing trait of a people. With the negro we may take the proportions of head, face, and nose, pigmentation, texture and color of hair, and pilosity. This ensemble distinguishes Negroids from other groups of mankind, though

perhaps no one characteristic, barring pigmentation, would do so. So it is with the Mongoloid, with whom facial proportions are important, as perhaps also alveolar projection. Only the ensemble of traits distinguishes Caucasoids from other peoples—no single characteristic does so.

In a word, we distinguish groups of mankind as we distinguish individuals, who are like some other individual in regard to any one quality, but not in the ensemble. This is apart from any question of zoölogical significance or of attribution of characteristics to use and disuse or environment. A map of the racial groupings of mankind, however, would show us that with exceptions those peoples who are physically alike live in contiguous or adjacent territories. The distribution of the Mongoloid peoples is nearly continuous, as is that of the Negroid peoples if we except the Negroids of Oceania, and the geographical distribution of Caucasoids was, before the recent spread of Europeans into all quarters of the globe, a continuous one. What is the import of this relation between physical type and geographical area? The localization of a type may be due to the fact that the peoples of that racial complexion have spread from adjacent territories and won the land from others, as in many instances archeology leads us to suppose was the case. Or, as in the New World, the invaders may have spread without dispossessing any other people. Another explanation lies in the influence or supposed influence of geographical factors upon race. Growth is much influenced by food and sunlight and the functioning of the endocrine glands is much influenced by food constituents, which in turn are dependent upon territory. Those who dwell in the higher altitudes, for example, are said to have a shorter stature than peoples of the same type who live at lower altitudes, and differences in food condition may account for this.

But if physical type is a reflection of geographical conditions, why does the type remain constant under new conditions?

The only answer would be, it seems, that man's structure formerly had a plasticity which enabled it to adapt itself to environmental demands, but has now become set and has lost

that earlier plasticity. Having specialized along this line or that, in stature, form of nose, pigmentation, he is now precluded from changing. In other words, it does not follow that if he could once adapt his structure to environmental influences he could always do so. Races, it may be, like individuals, have their limitations.

"Whatever the physiological mechanism may have been, there seems to be good evidence that climatic conditions have indirectly become impressed on the germ-plasm so that definite responses have become heritable. In any case, natural selection, or rather elimination, has always been at work and, combined with isolation areas, has produced stocks with certain associated characters, and it is to such stocks that the term 'races' can be applied.

"Man has lived for a very long time on the earth; he originally was a variable animal, whatever he may be now, and being able to travel long distances, he has wandered afar even in ancient times. A considerable mixture between different races, stocks, or whatever they may be called, has doubtless taken place at all periods, hence it is extremely difficult to determine whether the modifications from the supposed average type of any given people are due to inherent variability, to reactions to the conditions under which they are living or have previously lived, or to race mixture." [1]

But for all our suppositions, we do not know the cause of race differences nor the extent to which a racial type is fixed.

It is often said that there are no pure races. But if that is so, are there any races at all, and if there are how can we identify them?

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Part Two

PREHISTORIC MAN

The greater period of human development precedes the beginnings of written records but it is nevertheless not without records. Remains of man himself are preserved beneath strata of limestone, in river terraces, or beneath glacial drift, and these tell a manifold story which they illustrate with lifelike fidelity.

The stone implements which prehistoric man used have been found in great numbers and they show different workmanship and different types. The strata, the glacial drift, or the river terraces allow us to see the order of development, and we can unravel much of the story of their evolution.

The beginnings of metallurgy are almost synchronous with the beginnings of writing, and for the early metal cultures we have more abundant evidence than for any previous equal period of time. The use of metals, therefore, may be said to close the prehistoric period and to usher in the civilizations which utilized writing.

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CHAPTER IV

THE STRUCTURE OF PREHISTORIC MAN

"'Tis opportune to look back upon old times and contemplate our forefathers."—Sir Thomas Browne.

A number of human skeletons, or parts of skeletons, have been found which undoubtedly are of great age. Their antiquity is attested by the geological evidence of undisturbed superimposed strata beneath which these skeletal parts reposed, or by association with remains of animals now extinct—incontrovertible evidence of great age. The oldest of these remains is that of a skeleton found in Java, called *Pithecanthropus erectus,* or "ape-man erect," indicating that it was believed to be a type intermediate between man and ape, and a creature who walked erect. It belonged to the last part of the pliocene period, or, more probably, to the early pleistocene, and is probably half a million years old.

Only portions of a skeleton were found, these being in separate places, though within the radius of a few feet and at the same geological horizon. The bones generally are assumed to belong to the same skeleton, although this view may be challenged. They consist of a calvarium, or skull cap, with prominent brow ridges and low frontal region, suggesting small brain capacity, a capacity estimated as 850-900 cubic centimeters, some 200-300 c.c. more than the brain capacity of the gorilla; a femur, undoubtedly human but with anthropoid characteristics and possessing a large third trochanter (a protuberance below the great trochanter on the upper part of the shaft), a femur indicating that its possessor walked with knees flexed; three molar teeth of a type bordering on that of the apes. The find was made by Dubois in 1891 and was exhibited to scientists in 1894. It was not until 1923 that fellow-scientists were again allowed to examine the

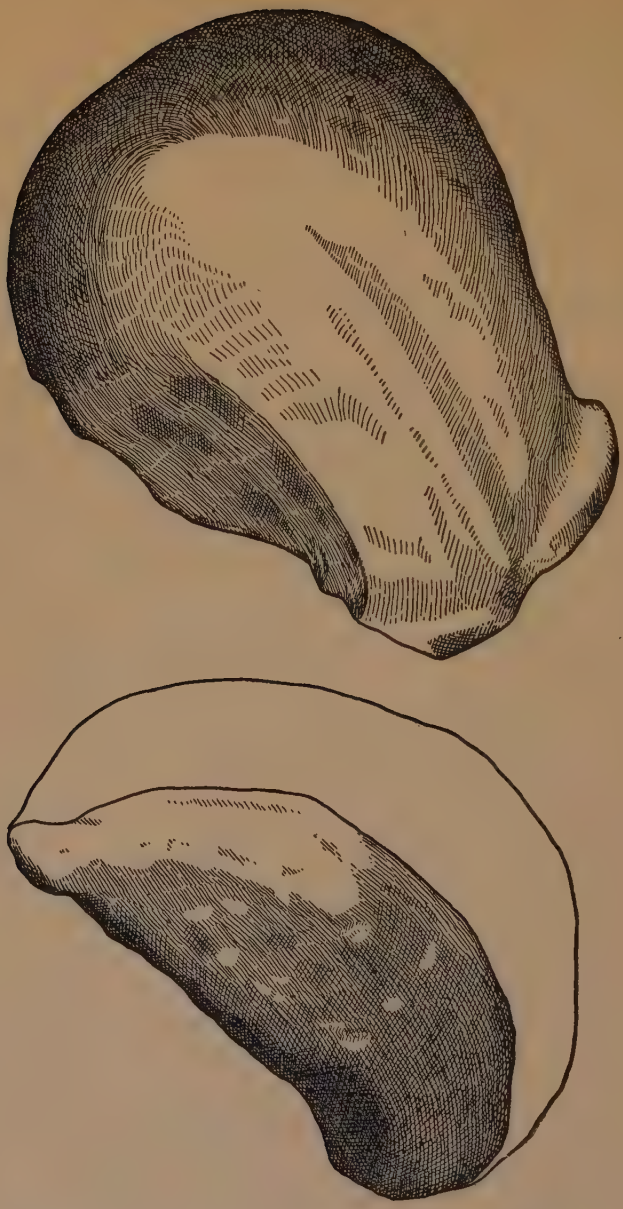

FIG. VII.—THE SKULL CAP OF PITHECANTHROPUS ERECTUS.

From a cast. There are large overhanging brow ridges and a constriction of the skull posterior to these ridges. The forehead region is low, and the skull is narrow in comparison with its length. The lower figure shows the comparison with a modern European.

remains. Hrdlička reports them more human-like than the casts had indicated. This is in accordance with the recent description which Dubois has given of the brain cast. The dentition, likewise, is human in type. The pulp cavity is not large and the roots of the teeth are fairly long—in contrast with the teeth of the Heidelberg man. As in the apes and in the more primitive races of man, however, the roots are widely separated. Though the crowns of the teeth are large, they have a transverse diameter in excess of their sagittal diameter, which is a trait of human teeth in distinction from those of the apes, in whom the width of the molar is less than the antero-posterior length. Although the upper wisdom tooth is large, it is smaller than the other molars, as in the orang and in contemporary man.

The frontal fissure, associated in modern man with the function of speech, is developed more than in the apes, though not so extensively as in modern man, from which fact Dubois draws the conclusion that Pithecanthropus was in possession of speech. But it is very doubtful that such an inference can be made from a study of the skull cap. All that one can say, at most, is that the potentiality for speech was there so far as brain development is concerned. The anatomist cannot tell from an examination of the skull of modern man whether or not the possessor had speech, much less from fossil skulls.

In 1890 Dubois had discovered in another part of the island of Java remains of a large-brained early man of pleistocene date, represented by portions of two individuals. One of these men, known as Wadjak II, had a brain volume estimated at 1,650 c.c., which is very large. The brain size of the other individual, Wadjak I, is estimated at 1,550 c.c. (The average for European males is about 1,450 c.c.)

These, like the Talgai remains found in Queensland, Australia, suggest a type ancestral to the modern aborigines of that continent. The proportions are similar, the characteristics are much the same, but they are present in these fossils in more pronounced form. The estimated cranial capacity of the Talgai skull is 1,300 c.c., which is probably less than the

average for adults of the type, for the individual who left us his brain case on the Darling Downs was a lad some fourteen to sixteen years of age and had not attained full development.

The Rhodesian skull, found in a quarry in South Africa in 1921, has been the subject of much interest among anatomists. Unfortunately, all geological evidence of age is lacking, though the circumstances of the find do not preclude the possibility of great age. It is one of the most primitive of fossil human remains, with large facial area, large beetling brow ridges, and large teeth. The form of the palate is human, for it has the horseshoe shape found only in man. The skull resembles that of Neanderthal man, but in some respects is more primitive.

Next in age, perhaps, is the Piltdown skull, found in 1912 in the county of Essex, southern England. The mandible is of primitive form, so primitive that more than one anatomist has pronounced it that of a chimpanzee, though now it is generally accepted as human and as belonging to the Piltdown skull. Cranial capacity has been variously estimated at from 1,170 c.c. to 1,400 c.c. The skull is that of a woman and, if we accept the estimate of 1,400 c.c., is large for a female.

The Heidelberg mandible, found in 1907 in gravel pits at Mauer, near Heidelberg, Germany, is admittedly human.[1] The jaw is massive, containing large teeth of primitive form, with molars ranging in size as in the gorilla, rather than as in contemporary man; the chin region is little developed and is receding. The ascending ramus is of the type found in the apes—broad, thick, with shallow sigmoid notch.

Remains of Neanderthal man have been found many times in western and southwestern Europe, in some cases nearly complete skeletal remains. The skulls are characterized by heaviness, roughness of outline, large occipital protuberance, heavy eyebrow ridges, large jaw and teeth.

Among English finds of Neanderthal age, at least 25,000 to 30,000 years ago, may be mentioned the Dartford skeleton,

[1] G. Elliot Smith suggests, however, that the time may come when we shall have to classify it as outside the human species.

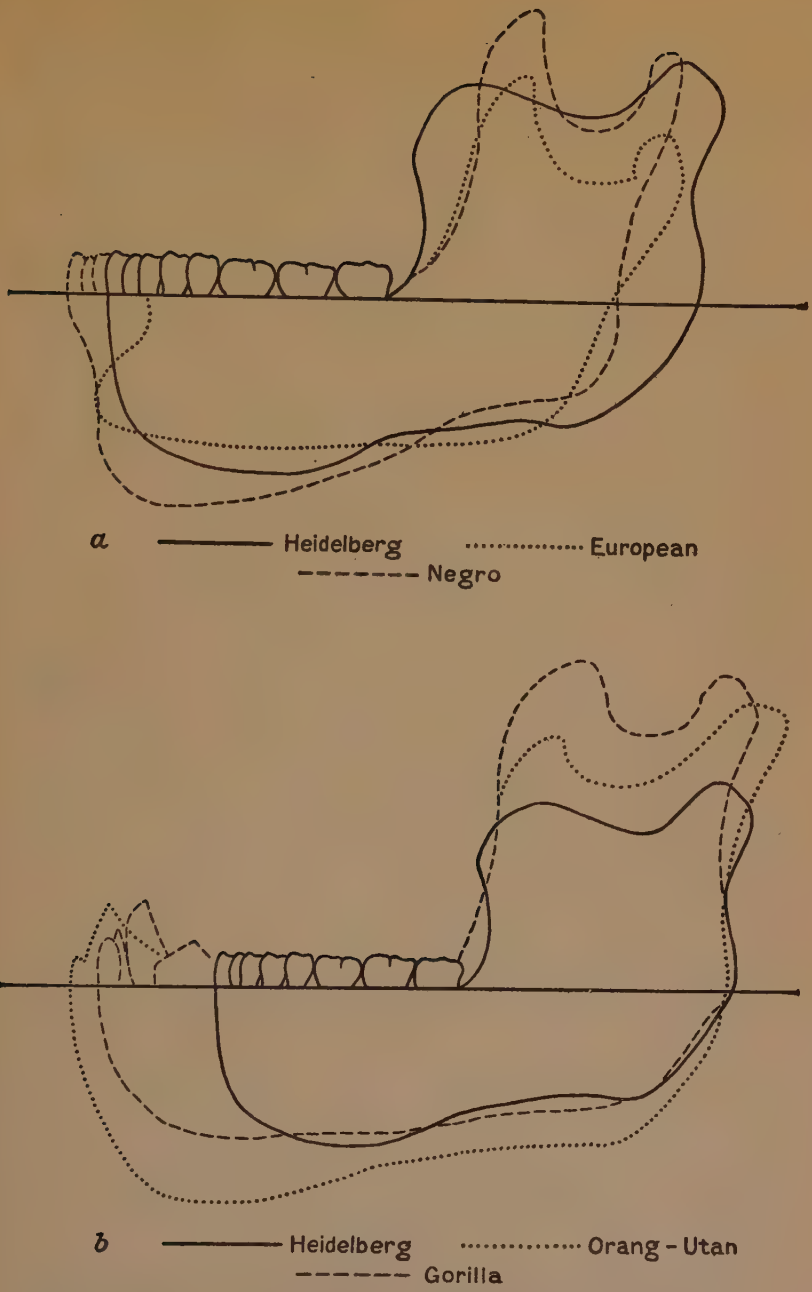

FIG. VIII.—THE HEIDELBERG MANDIBLE COMPARED WITH THAT OF A NEGRO AND A MODERN EUROPEAN, AND WITH THAT OF A GORILLA AND AN ORANG-UTAN.

The Heidelberg mandible is more massive than that of any known man, the bony tissue being thick and heavy. The width of the ascending ramus is enormous. There is no chin and there are no genial tubercles.

found in the third river terrace of the Thames, a terrace which lies from forty to sixty feet above the level of the river. If a thousand years be allowed for the wearing down of one foot of terrace, the deposits are from forty thousand to sixty thousand years of age. In the sixty-foot terrace were found remains of three species of rhinoceros, two species of elephant, one of lion, one of reindeer; the associated animal remains corroborating the geological testimony of great age. The skeleton is that of a male, the cranial capacity being about 1,750 c.c. The skull is long; glabella and superciliary ridges are prominent. The chin is feebly developed. The last molar is as large as or larger than the first. The head of the femur is large. All of these characteristics are primitive and suggest membership with the continental Neanderthal type.

Neanderthal man was followed, probably dispossessed, by Cro-Magnon man, whose type is more like that of modern man. He was of tall stature, erect, and had a large cranial capacity, his brain being larger than that of the average modern European. The vault of the skull is high—hypsicephalic. The face is broad, the orbits large, square, and angular. The nose is narrow, long and pointed. The upper alveolar border, containing the teeth, projects. The lower jaw is large, but there is a well-developed chin.

Not so old as the Dartford skeleton is the Tilbury skeleton, found at the Tilbury Docks, on the north bank of the Thames, about halfway between London and the mouth of that river, on flat marshy land. Its date is late paleolithic or early neolithic. This skull is more like that of modern man. The chin is projecting; the capacity of the skull is about that of the average Englishman, 1,500 c.c. The tibia is flattened from side to side, having an index of 55, whereas that of the average Englishman is 62. Otherwise there are no important differences between these remains and those of contemporary man.

Last may be mentioned the Essex skeleton, found along the coast line of Essex in 1910. It was uncovered below a prehistoric floor which was under eight to ten feet of clay, lying

amid a mass of neolithic stone implements and pottery. The period of the deposits is neolithic, and has been estimated as about 2000 B.C. The skeleton is that of a woman, about five feet four inches in height. The capacity of the skull is 1,260 c.c., almost the average for London women (1,300 c.c.), and the length, width, and height of the skull are each about the average of London women. The teeth are regular and well formed, the incisors meet, instead of the lower passing behind the upper, as in contemporary man, thus permitting a side-to-side grinding which our incisors seldom allow. The humerus and the bones of the forearm indicate that the lady was right-handed. The remains show a close approximation to modern type.

Many anatomists have attributed man's evolution to the increase in the size and convolutions of his brain. But, as the above examples have frequently indicated, many of these early men had larger brains than the average contemporary European. The average of Neanderthal and more particularly that of Cro-Magnon exceeded the average of the present-day European. Taking into account all of the evidence, it can scarcely be said that man's brain has increased in size throughout the period of prehistoric times, nor is there evidence that his brain is likely to increase in size.[1]

The gradation in type from the oldest to the most recent finds is by no means complete and continuous, yet if all the skulls and skeletal portions of prehistoric times are arranged in order of age, they represent, with exceptions, a transition in type, a series in which the oldest is most like the apes, tapering down with modernity into greater similarity to civilized man. The evidence of geology and of paleontology is to the effect that our ancestors resembled the apes more than do our contemporaries, and that there has been through the millennia a gradual but undoubted transition from more to less ape-like human type. The import of these changes is, however, not so clear.

[1] If we take the weight of the brain as equal to 1, the weight of the body among fishes averages about 5,688. Among reptiles it is about 1,321; among birds about 212; for anthropoids 60 to 100; and for mankind 22 to 36.

DO THE CHARACTERISTICS OF PREHISTORIC HUMAN REMAINS IMPLY A COMMON ANCESTRY FOR MAN AND APES?

Resemblance to the apes increases as we trace back man's ancestry into neolithic times, the later paleolithic, the earlier paleolithic, and those still earlier stages represented by the remains from Heidelberg, Piltdown, and Java. This increasing resemblance has been accepted as demonstrating a common ancestry for man and apes. Other abundant evidence indicates a common ancestry, but the evidence of prehistoric human remains does not in itself justify the inference, though, of course, it does not discountenance it. We base this conclusion on the fact, if fact it be, that practically all of the changes in man's structure traceable through prehistoric remains are the result of changes in food and habits. Let us see what these changes are and what shifts in man's diet and habits would account for them.

The most notable changes are found in the skull. Briefly, the story of change is to: a higher frontal region; increased bregmatic height; smaller superciliary ridges; increased head width; less facial projection; decreased height of orbits and a shifting of the transverse diameter downward laterally; a more ovoid palate; smaller teeth; diminished relative size of third molar; shorter, wider, and more ovoid mandible; increased chin prominence; smaller ascending ramus; decrease in size of condyles; decrease in distance between condylar and coronoid process; in general, greater smoothness, less prominent bony protuberances, less of the angularity and "savageness" of appearance which characterize apes. There is evolution in type, but the evolution is result rather than cause. The change in type is notable, but there is reason to assign it to change in function, to use and disuse.

Practically all of the above-mentioned features of the skull are intimately linked together, so that scarcely can one change without the change being reflected in the others, some features, of course, reflecting the change more immediately and more markedly than do others. If we suppose that man's diet and his manner of preparing food have changed, we have an in-

dex to most of the skull changes, provided the dietary change has been from uncooked or poorly cooked to better cooked food, from more stringent to less stringent diet. Development of stronger muscles concerned with chewing will bring about the type of changes which we find as we push human history further back into the remote past.

Change is most marked in the region in which the chewing muscles function. With tough food and large chewing muscles is associated a large mandible with broad ramus, large condyles, heavy bony tissue. The larger teeth are accommodated to the tougher food and their greater specialization is an adaptation to the needs of the masticator. Larger teeth demand more alveolar space, and there results an elongated alveolar region with greater sagittal diameter, and a more prognathous and more angular mandible. The increased width of ramus has a mechanical advantage in the leverage given the coronoid process. The larger condyle affords a better resisting fulcrum and is associated with the greater side-to-side play correlated with longer mandible and with the chewing of tougher food. The more forward projection of teeth in both upper and lower alveolar region is in accordance with the characteristics of animals which use the teeth for the mastication of tough food and no doubt is a function of vigorous mastication. The palate conforms to the mandible, with which it forms a physiological unit, however separate morphologically the two may be, hence is long and less arched. Zygomatic arches stand out for the accommodation of the large chewing muscles which pass beneath them. The adjacent walls of the skull are flattened and forced inward by the pull of muscles, which of necessity is inward as well as downward, producing elongation of the skull. The temporal muscles reach far up on the skull, giving rise to a high temporal ridge; they extend forward as well as backward, giving a more prominent occipital region and a more constricted forward region, resulting on the forehead region of the skull in the elevation of the superciliary ridges and intervening glabellar region. Projecting brow ridges are associated with stout temporal and masseter muscles and large canines.

The facial region is constricted laterally and responds in a greater forward projection, one result being that the transverse diameter of the orbits is thrust upward outwardly, giving the horizontal transverse diameter which characterizes the apes and which is approximated in prehistoric man and some contemporary dolichocephalic peoples. In young anthropoid apes, when chewing muscles are little developed and there is little constriction in the lateral region posterior and inferior to the orbits, the transverse diameter of orbits is oblique, as in man, being elevated to the horizontal when temporal muscles develop and function more vigorously, thrusting in and upward the outer margins of the orbits. Constriction of outer margins of orbits produces the high orbits which we find in apes, and to a less marked degree, in prehistoric human remains.

Elongation of the skull increases the distance between bregma and nasion, producing a low retreating forehead and a low head height-breadth index.

That muscular pull has this result is suggested by the laboratory experiments of Arthur Thomson conducted on inflated canvas bags the shape of a skull, with attachments corresponding to the chewing muscles and with variations in the pressures and pulls applied. It is further indicated by the fact that the Eskimos, a people living on raw food, have almost all of the "primitive" characteristics in a more pronounced degree than do other contemporary peoples. Again, in the Australians, a people whose cooking of animals has attained little development—they cook the animals whole over an open fire—there are these "primitive" features. On the other hand, similar food conditions do not prevail among the negroes, who constitute a third group exemplifying these "primitive" traits.

As to other skeletal characters, we have no evidence for the earliest remains, excepting only the femur of Java man, though there is abundant material from the much later, though still early, Neanderthal and Cro-Magnon types. Here the most notable differences have to do with the flexure of the knees and the larger posterior diameters of the lumbar verte-

bræ, both apelike characteristics. A stooping posture can be inferred from the shift in plane of articular surfaces at the head and on the lower surface of the femur, the upper surface of the tibia, and the articulation of the tibia with the subjacent astragalus. That these differences exist is clear, but that they have evolutionary significance beyond reflecting change in form associated with change in function is not clear. They are common in contemporary peoples of the lower cultures, such as Africans, Australians, and others. The explanation of these traits is the absence of chairs. The position of rest is that of squatting on the heels, or of sitting on the haunches with knees flexed, or other similar pose, different from that which Europeans assume when they sit. This throws the articular surface of the head of the femur further forward, throws back the articular surfaces of the lower end of the femur and the upper end of the tibia, and throws forward the articular surface at the inferior end of the tibia and gives rise to a forward articular surface on the subjacent astragalus. The greater posterior diameter and lessened anterior diameter of the vertebræ of the lumbar region are a function of the more frequent and forcible bend forward of the vertebral column. Similar differences are found in savage tribes whose culture lacks chairs.

If the above interpretations are correct, it follows that a return to the conditions of diet and of life which characterized prehistoric man would be followed by a return to his physical type. Yet if there were this transition to a type more simian, one could not say we were approaching a common ancestor, for, if we have one, we would of necessity be getting farther away, no matter how similar the types might become.

The similarity would not be due to the transmission of qualities from a common ancestor of a remote past. If this be true, it is equally true that an increase in similarities as we push back the time period does not imply common ancestry, if the changes are due to changes in function, following changes in diet and posture. Since, in a given group, the male of the human species resembles the anthropoid ape in nearly all of these characteristics more than does the female, though of

necessity both sexes must be equally remote from simian-like ancestry, it seems clear that mere resemblance cannot constitute an argument for phylogenetic descent. These sex differences, moreover, are in support of the above implications, seeing that the more muscular male has the same simian attributes, though in modified form, which are characteristic of early man. If he is more conservative of the type—though this attribute usually is assigned to the female—this is because his bodily activity is more nearly that of prehistoric man and that of his supposedly near relations, the anthropoid apes.

Though this is not a critique of the theory of evolution, but merely of the argument that change of type shows common ancestry with a zoölogically similar species, we would point out that man, if descended from an ancestor common to him and the apes, should in type more nearly approach that remote ancestor as we go back to earlier simian types, whereas commonly we are content to insist that the earlier human types approximate contemporary anthropoid apes. It is essential to the theory of common ancestry that earlier simian types approach the types of earlier human forms.

Yet they do not approach the types of earlier human forms. The resemblances of prehistoric man hark forward to modern apes rather than back to prehistoric anthropoid ancestry. Prehistoric anthropoid forms help us as little in supplying the missing link as do those prehistoric human forms on which we have placed too much reliance, because an age with its mind made up to evolution of a unilinear type has seen what it has looked for. In unraveling the past we cannot do better than follow the methods of the geologist, who infers past changes from a study of existing forces and infers the existence of no force with which he is unacquainted. In so far as prehistoric human remains are concerned, it is not so much evolution which has given us modern man, as man who has given us his type by evolving it through physiological or functional changes growing out of changes in culture, an evolution which he is still continuing. If the cause lies within the species, the changes

do not imply common ancestry with a morphologically and anatomically similar species, even as they are not an argument against such ancestry.

What, then, shall we conclude with regard to the relationship between men and apes? Briefly this: A review of the similarities in structure, in blood, in use of limbs, points to the apes as man's nearest relations in the animal kingdom, his first cousins, if he has any. That some creature is his nearest relation is a conclusion to which we are driven by a consideration of animal life. As regards prehistoric human remains we cannot conclude that the increasing resemblance to apes as we go back in time implies simian ancestry, seeing that these changes may be due to changes in food and posture, representing the acquisition of form growing out of function, or closely correlated with function. In that case, prehistoric man's increasing resemblance to apes has other explanation than descent from a common ancestor, being, if our interpretation is correct, a case of convergence, the response of similar form to similar function.

As a matter of fact, the change from long-headedness to short-headedness from earliest man to more recent man of the prehistoric past, is a change to greater resemblance with the apes. Round-headedness is a characteristic of apes much more than of modern man. Here the resemblance is due to different factors: in the case of round-headed man to the decrease in chewing muscles; in the case of the apes the occiput is flattened to provide attachment for strong muscles reaching up from the neck to support the head. Man's upright posture obviates the need for such marked occipital support; the ensuing posterior projection of the occiput accounts largely for the greater length of his head in comparison with that of the apes. But this is only to repeat that mere resemblances do not count for much; they must be interpreted in the light of the causes and occasions which give rise to them.

This is not the place to discuss the relative merits of Darwinism, Weissmannism, or Lamarckianism; but there is nothing in the above view which would not fit into any one of those

schemes. The modification of form through function can proceed from generation to generation by the principles of Darwinian selection, if that is the doctrine of evolution to which one is committed. It can proceed, of course, with the mechanism represented by Weissmann. Likewise it is susceptible of Lamarckian interpretation if one be a Lamarckian. But in any case we cannot afford to close our eyes to facts, because we may shy from their implications. A good case is not strengthened by adducing poor reasons in support of it, and no fear of giving comfort to the enemy should lead us to suppose that a partial concealment of truth, which arises from a concealment of part of the truth, can compensate for the loss of unprejudiced consideration of the facts of life, whether they seem to fit into our schemes of evolution or fail to fit. Since the day of Darwin the evolutionary idea has largely dominated the ambitions and determined the findings of physical anthropology, sometimes to the detriment of the truth. The duty of the anatomist, however, is not to plead a cause, but to play judicial advocate, willing to hear and consider all evidence bearing on the case.

The human has been differentiated from the simian type for a much longer period than we have been accustomed to suppose. We are constantly lengthening the vistas of the past, and it may be that we must extend them beyond our present wont in order to find the point where human and simian forms have diverged into their present types. Certainly one can no longer accept Java man as common ancestor, nor do any of the Tertiary remains of fossil apes suggest common ancestry. Our present evidence is insufficient. We must not convict the prisoner at the bar simply because we do not know who else committed the crime. The issue is, Can we prove him guilty? And so with regard to a common ancestor. "Positive facts," as Lamarck finely says, "are the only solid ground for man; the deductions he draws from them are a very different matter. Outside the facts of nature all is a question of probabilities, and the most that can be said is that some conclusions are more probable than others."

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CHAPTER V

THE STONE AGES

"Then there took possession of cavernous shelters under the rocks, a being who was cunning to wound with a sharpened stone the savage beasts, and by his ruses to overcome the ancient denizens of forest, plain, and mountain."—ANATOLE FRANCE.

"Nowadays one digs in the earth for knowledge, not for 'curios.'"—O. G. S. CRAWFORD.

"Time which antiquates antiquities, and hath an art to make dust of all things, hath yet spared these minor monuments. . . . To be unknown was the means of their preservation, and obscurity their protection."—SIR THOMAS BROWNE.

LARGELY by accident, prehistoric times have fallen to the lot of the anthropologist rather than to the province of the historian. Since, however, the anthropologist is the historian with larger perspective, he must reckon with the beginnings of human civilization. It is, in one sense, a meager collection with which he must work, for prehistoric times give him only material objects, and these, for the larger part of the period, are merely work in stone. Yet these crude objects tell him more of prehistoric times than all the sages can. The nature of prehistoric culture can be learned only by acquaintance with objects from prehistoric times. Many attempts have been made to interpret the life of paleolithic man by reading the records of contemporary savages. But the cultures differ greatly from area to area, so that we are left with the problem: What tribe, or tribes, of savagery shall we take as representative of the culture of prehistoric times?

Nothing must be taken as established for which there is no evidence. Nor does the *argumentum ex silentio*, the "argument from silence," always apply. Absence of evidence is not always evidence of absence. For example, the fact that no wooden artifacts are found from the so-called eolithic and from the paleolithic periods is not evidence that prehistoric

man did not utilize wood, for, in the nature of the case, wooden objects would not be preserved through so long a time. Neither is the absence of skins, structures or other perishable objects, evidence that these things were not part of the culture of prehistoric man. Only when the object certainly would have been preserved had it existed, and certainly would have been found by the archeologist had it been preserved, can absence of evidence be considered evidence of absence. Many a pitfall will be avoided if this is kept in mind.

GEOLOGICAL PERIODS

The evidence of man's long residence on the earth is twofold: skeletal remains which attest his existence at a remote date, and implements of human manufacture. Most of the latter are of stone, a material of great durability. With regard to stone implements the problem is threefold: Of what types are the implements? What changes in types are observable? What is their age?

Prehistoric time is measured in culture periods, geological periods, or zoölogical periods. Remains of extinct animals found in association with human implements are an index to the age of the latter. When the three criteria can be correlated we have a highly unified scheme. Ultimately, however, all time problems go back to geological evidence as the most conclusive: where there is lack of harmony between the various testimonies of age, the geological evidence is decisive. Of the larger periods into which geological time is divided—the Primary, Secondary, Tertiary, Quaternary, the last mentioned is the one to which man and his handiwork belong, with questionable existence in the late Tertiary. Implements of human manufacture can be traced through glacial periods, and many so-called implements have been found in Pliocene strata, at the end of the Tertiary, though all do not admit that these eoliths show evidence of human workmanship. So little do they depart from nature's handiwork

that some archeologists are not convinced that man made them.

Before metal was worked stone was used. This has been man's sole hard material throughout most of his prehistory.

The working of metal began about 5000 B.C., when copper was hammered into shape in parts of the Mediterranean area. The preceding New Stone, or Neolithic age, began about 8000 B.C., the preceding Late (Upper) Paleolithic age about 20,000 B.C., while the Early (Lower) Paleolithic may go back to 100,000 or 150,000 years ago. If an Eolithic age preceded the Early Paleolithic, its beginning was in a remote past.

Variations in estimates of age increase as we approach the twilight beginnings of human life. Outlines are blurred and much is obscure; in this distant past time contours are dim, little is clear-cut and indisputable.

The later phase of Quaternary is called the Recent, and corresponds roughly with the Neolithic and Metal periods. The preceding period, the Pleistocene, is divided into Glacial periods, of which there are four, as well as three Inter-glacial and a Post-glacial, a total of eight periods.[1] The divisions of these periods were marked by the presence of huge glacial sheets covering large portions of northern Europe and of North America, probably contemporary in the respective continents. The southern line of the glaciers is not identical in successive glaciations, but does not shift very much. It dips farther to the south in the interior than along the ocean. On the continent the southern line may be taken as, roughly, Moscow, Berlin, Paris. It covered the northern part of the British Isles, extending southward about as far as a line drawn from the Bristol channel to the mouth of the Severn, or about the middle of England, the more northerly parts of the British Isles being deeply submerged. In North America it went as far south as Long Island Sound, on the Atlantic coast, dipping southward to southern Illinois, Iowa, Kansas, and bending northward to the Columbia River region. These

[1] Some geologists recognize only three glaciations. Whether there were three or four glaciations, the sequence of life and of culture remains the same.

successive southward thrusts and northward retreats of the great ice cap are like so many swings of a great pendulum which marks time in the geological clock of the paleolithic period. Although in the New World no human implements have been found which geologists agree antedate the last glaciation—some geologists accept certain implements as Pleistocene—there is abundant evidence from the Old World, especially from northern and western Europe.

First Inter-glacial Period.—During the first glaciation the snow line of the Alps was twelve hundred feet lower than at the present time, indicating a colder climate in that portion of Europe as well as farther north. Scandinavia was covered with the ice sheet, which extended as far south as Hamburg and Berlin. The drift deposits left by it have an average thickness of nearly a hundred feet. Britain was not so much affected as the continent, thanks, no doubt, to tempering winds from the Atlantic. The fauna and flora of the succeeding Inter-glacial period indicate a warmer climate than that of the present. The deposits at Norwich, England, include maple, elm, birch, beech, pine, and spruce. Among the fauna represented in France is the southern mammoth, Steno's horse, Etruscan rhinoceros, giant hippopotamus, giant beaver, *Bison antiquus,* saber-toothed tiger, Sedgwick's deer. Many animals abundant during the preceding Pliocene are not found. The implements are Eolithic.

Second Inter-glacial Period.—During the second glaciation there was marked subsidence of the land along the southeast coast of England. Here fresh Arctic mollusks are deposited in a layer of marine beds over those which contain the fauna and flora of the warmer First Inter-glacial period, brought there by new Arctic currents. The period was warm and of long duration, possibly longer than the entire interval between the Third Inter-glacial and the present time, as indicated by deep erosions of ice drifts. There is a wide range of flora and of fauna. Of the thirty-seven species of plants found in Provence, France, twenty-nine are extant. Among the animals are new arrivals from Africa or from Asia: the straight-tusked, or ancient elephant, the broad-nosed rhinoceros, the

African lion, the African hyena, the saber-toothed tiger, deer, wild cattle, wild horse, bison. To this period, probably, belongs Heidelberg man.

Third Inter-glacial Period.—The third glaciation began approximately 120,000 years ago and lasted some 20,000 years. It did not go south of the Midlands in England, save in the second stage, when it penetrated as far as the Thames.

The succeeding Inter-glacial stage, then, began approximately 100,000 years ago and lasted from 50,000 to 60,000 years. The maximum temperature appears to have been slightly above that of the present. Near Paris grew sycamore, maple, willow, Austrian pine, box, fig tree, Canary laurel. The fig and the Canary laurel bloom only in winter, hence the season must have been mild as well as damp. The warm climate of the first part of the period was followed by a cooler climate, and this, in turn, by a drier one. In Switzerland the flora was similar to that of the present, comprising spruce, fir, larch, beech, yew, and other trees now native to the region. The fauna of the Third Inter-glacial period includes the straight-tusked elephant, Merk's rhinoceros, wild cattle, the stag—animals whose presence indicates a cool, temperate climate.

The culture of the period comprises most of the Lower Paleolithic, excepting the Pre-Chellean.

Fourth Glaciation.—The fourth glaciation reached two maxima, the earlier about 40,000, the second about 20,000 years ago. Following the first maximum there was a rapid retreat of the ice sheet; a more temperate climate prevailed, followed by a severity as great as that which characterized the first part of the period. Along the Thames flourished arctic flora and fauna, the latter including the woolly rhinoceros, the straight-tusked elephant, reindeer in large numbers, horses, bison, wild cattle. The tundra fauna lingered in Belgium in the latter part of this glaciation, though in the region of the Dordogne and of the Pyrenees it had disappeared.

The culture closes the Lower Paleolithic.

Post-glacial Phase.—The fauna of the Post-glacial period is mainly that of Neolithic culture, including cattle, sheep, goat,

pig, horse, dog—animals introduced by Neolithic man or at least domesticated by him. There are two species of cattle, the Celtic short horn and the long horn, likewise two species of horse, the Plateau or Celtic, and the Forest horse.

CULTURE PERIODS

Eolithic.—The Eolithic is a phase of Tertiary culture which some archeologists believe established by finds of implements of that period, while others remain unconvinced. That man began with the simplest workmanship is a conclusion to which we are driven by a consideration of culture history, whether among civilized man or the savage, in modern or in ancient times. That man used objects before he fashioned them seems assured; he was a tool-using animal, no doubt, before he was a tool-making animal. All admit that man passed through this twilight realm of culture. The controversy is as to whether the stones called eoliths are really evidences of human use or manufacture. Of necessity beginnings are obscure, artifice gliding imperceptibly into natural forms, leaving us perplexed as to when man and when nature is responsible for the workmanship.

In many cases the implements from Tertiary deposits attributed to man are marked by a bulb of percussion, which some archeologists interpret as indicating human workmanship. Observation of the forms of fracture of stone-crushers under undirected mechanical pressure, however, show that similar bulbs of percussion can be produced by purely mechanical means and so may be the result of natural forces. Such natural forces which split pebbles are earth-slides, turbulent water, glaciers, frost, and ice. The hoofs of animals also break one stone against another.

Other defenders of eoliths point to the extent to which the implements are adapted to the hand of man. But this interpretation is possibly illusory. Only those stone objects are selected by the archeologist which he perceives are fitted to the hand of man. The significance may be, not that the implement is adapted to the hand of man, but that the hand

of man is adapted to implements of this type. To the extent to which the latter is true, human workmanship is not implied. An increasing number of archeologists are, however, disposed to accept eoliths as of human workmanship.

EARLY STONE AGE CULTURES OF WESTERN EUROPE

Eolithic

Paleolithic

	Climate	Flora	Fauna
LOWER PALEOLITHIC:			
Pre-Chellean	Inter-glacial	Forest and meadow	Horse, ox, bison,
Anglian Mesvinian Strepyan	Warm or temperate		deer
Chellean	Warm to torrid	Forest and meadow	Deer, boar, horse, ox
Acheulean	Temperate to cold and dry	Temperate forests Steppe flora	Deer, boar, horse, ox, beaver, otter
Mousterian	Increasing cold, damp	Tundra flora, pine, yew, birch	Musk-ox, ass, wild sheep
UPPER PALEOLITHIC:			
Aurignacian	Cold Dry	Steppe flora	Musk-ox, ass, wild sheep
Solutrean	Sub-arctic Dry	Tundra flora	Musk-ox, ass, wild sheep, stag, hare
Magdalenian	Arctic, rising temperature	Steppe and Alpine flora	Reindeer, bison, ox Arctic fauna appearing
Azilian	Warm Humid	Deciduous forests	Arctic fauna appearing

Neolithic

Pre-Chellean.—The divisions of the Paleolithic, or Old Stone, age are given in the above table, the first four belonging to the Lower, the latter four to the Upper Paleolithic. The range of years represented possibly is 100,000-150,000, an estimate likely to be too low rather than too high. The Pre-

Chellean, the earliest of the Paleolithic periods, belongs to the Second Inter-glacial and is subdivided into Anglian, Mesvinian, Strepyan.

The implements are crude, usually worked only on one side, though some have been retouched. The types include borers, cutting implements, the *coup de poing,* or fist hatchet (a large implement with blunt, thick base for hand grasp), the planing tool, scraper, knife, hammer-stone, throwing-stone.

Chellean.—Chellean implements show improvement over preceding types. New types appear, indicating that the older types yield to better workmanship. The workman still is dependent upon the chance shape and the shattered fragments of flints which he has not yet learned to shape symmetrically. The *coup de poing* is considerably improved, flaked on both sides into an almond shape, and fits the hand more snugly. As a rule the point as well as adjacent edges are sharpened, the opposite end being round and blunt to accommodate the grasp. From this period comes the first combination tool, a stone with a point for boring, a convex edge for cutting, and an opposite concave edge for scraping rounded objects, such as arrow shafts. The stations are in western Europe, in the area of Pre-Chellean sites; a further intimation that the Chellean developed from the Pre-Chellean. The Etruscan rhinoceros and the saber-toothed tiger are not found, otherwise the fauna is practically identical with that of the Pre-Chellean, or Second Inter-glacial, period. The animals include Southern mammoth, hippopotamus, straight-tusked elephant, broad-nosed rhinoceros, spotted hyena, lion, bison, wild ox, red deer, roe deer, giant deer, wolf, badger, marten, otter, beaver.

Four of the great Asiatic mammals have arrived; there are two species of elephants; the rhinoceros and the hippopotamus are there. The horse is of the Forest, or Nordic, type, the ancestor of the modern draft horse. Mammalian life is, in general, of the type which frequents the river shores and bordering forests and meadows. The presence of the fig and the Canary laurel near what is now Paris, trees which blossom in winter, indicates mild climate. The bones of the hippo-

potamus and of the straight-tusked elephant often are found in conjunction, thus indicating a close association as well as contemporaneity.

FIG. IX.—A PALEOLITHIC IMPLEMENT OF THE *Coup de Poing* TYPE.

Such an implement was probably grasped by the hand and was not hafted. Though crude as compared with later implements, it shows undoubted signs of human work in the chipping. Natural forces could not have concentrated in such a fashion as to produce these edges.

Acheulean.—In the Acheulean period stone implements have undergone further specialization. The *coup de poing* is of several distinct varieties: ovaloid, double-edged, sub-triangular, straight-cutting edge at end, disk-shaped, triangular (thin and flat). In all the finer and smaller implements and tools, also, there is advance in specialization. Knives are

much improved; the borers are of finer technique, as also the *coups de poing*. Scrapers are more common and are better worked. The levallois flake is a large, wide, thin flake, fairly symmetrical, with a flat back, probably evolved from the

FIG. X.—AN ACHEULEAN PICK.

Such an implement, presumably, was not hafted, but was held in the hand. A great many skillfully directed blows were necessary to shape such an implement.

cruder preceding forms, representing the highest perfection attained up to that time in the flaking of stone.

Mousterian.—The Mousterian period, the period of Neanderthal man, the precursor of Cro-Magnon man, closes the Lower Paleolithic, and by some archeologists is called the Middle Paleolithic. Its stone implements include pointers,

scrapers, scratchers, and many others. The cleaver, which was worked during the preceding Chellean, degenerates and disappears.

The pointer and the scraper are the two implements which characterize the period. The pointer was produced from an approximately triangular chip; the scraper is similar, but somewhat larger. The finds include small spherical stones resembling the bola, or throwing-stones, though their use is not known. In the Mousterian a bone-implement industry first appears. Mousterian industry is more widely distributed through Europe than is any of the preceding industries, and there are indications of a Mousterian culture in China.

Aurignacian.—Implements of this period represent more specialized forms than are found during any earlier period. The specialization and improvement are best seen in the various bladelike scrapers or cutting implements of which many types have been found. They are generally oval, oblong, or irregular elongated thin flakes skillfully rechipped about the edge of the more convex side. The regularity and finish of this secondary chipping have won for it the name of the "Aurignacian retouch." Characteristic of these implements are the so-called spoke-shaves, such as might be used in scraping an arrow shaft.

Solutrean.—In the Solutrean period the working of flints reaches a higher stage of perfection than in the preceding Aurignacian, attaining its culmination in the latter part of this epoch.

Magdalenian.—Although the Magdalenian is Post-glacial, it belongs to the three successive glacial "phases" which fall within the Post-glacial period. These consist of cold and moist periods, followed by cold and dry periods, the former favorable to tundra life, the latter to steppe life. The cave art which characterizes this period depicts no less than thirty animals. Among those the most frequently represented are:

Tundra Life	Meadow Life
Mammoth	Bison
Woolly rhinoceros	Wild cattle

Reindeer
Musk-ox
STEPPE LIFE
Steppe horse
Saiga antelope
Wild ass, or kiang
ASIATIC LIFE
Lion
Desert horse
ALPINE LIFE
Ibex
Chamois
FOREST LIFE
Red deer, stag
Forest horse
Cave bear
Wolf
Fox
Wild boar
Moose, fallow deer
SEA LIFE
Seal

Reptiles, birds, and fishes are rarely depicted.

Although art is well developed, specialization in stone implements, and improvement in them, seem to lag. There are numerous bone implements; bone was used for sculpture, many of the finest art objects being carved out of this material.

Azilian.—The Azilian is an age of transition to the Neolithic, although it furnishes no distinctively Neolithic implements. In some respects it is a degeneration of the Paleolithic. The fine art work of the Magdalenian period is absent and there is little superiority in implements.

Cave Deposits.—Much of the best evidence of the Upper, or Later, Paleolithic comes from limestone caves, principally in southern France, wherein the evidence of man's early handiwork is well preserved under stalagmitic deposits on the floors of the caverns. Rock shelters serve a similar purpose, though not so successfully. Examples of the finds in two caves outside of France may be given:

The cave of Kesslerloch, near Thayngen, Switzerland, contains a relic bed, four feet under the level of the valley, in which were found the bones of the horse, reindeer, urus, chamois, ibex, mammoth, rhinoceros, wolf, dog, fox, cat, lynx, cave lion, hare, Ptarmigan, swan, glutton, bear. Probably the dog was not domesticated. The association of these animals with implements of Paleolithic type attests the great age of the implements.

THE CULTURE OF THE PALEOLITHIC (AFTER KROEBER)

(Solid line indicates presence of the object)

	Chell.	Acheul.	Moust.	Auric.	Solutr.	Magd.
FLINT IMPLEMENTS:						
Flaked core	———	———	———	———	———	———
Retouched flake	.....	.....	———	———	———	———
Retouching all over	.....	.....	.....	.....	———	———
Straight flake	.....	.....	.....	———	———	———
WOODEN HANDLES	.....	.....	———	———	———	———
FIRE	.....	.....	———	———	———	———
Lamp	.....	.....	.....	.....	.....	———
BONE IMPLEMENTS:						
Awl	.....	.....	.....	———	———	———
Dart-head	.....	.....	.....	———	———	———
Paint-tube	.....	.....	.....	———	———	———
Necklace (dress)	.....	.....	.....	———	———	———
Needle (dress)	.....	.....	.....	.....	———	———
Chisel	.....	.....	.....	.....	.....	———
Harpoon	.....	.....	.....	.....	.....	———
Spear-thrower	.....	.....	.....	.....	.....	———
ART:						
Carving	.....	.....	.....	———	———	———
Etching	.....	.....	.....	———	———	———
Painting	.....	.....	.....	———	———	———
Polychrome	.....	.....	.....	.....	.....	———
Composition	.....	.....	.....	.....	.....	———
RELIGION AND CUSTOM:						
Burials with offerings	.....	.....	———	———	———	———
Burials with paint	.....	.....	.....	———	———	———
Burials flexed	.....	.....	.....	———	———	———
"Rods of command"	.....	.....	.....	.....	.....	———
Skull cups	.....	.....	.....	.....	.....	———
Houses	.....	.....	.....	.....	.....	———
Masks	.....	.....	.....	.....	.....	———

Near Torquay, England, is a famous cave known as Kent's Cavern. In the course of its excavation seven distinct layers of deposits were found. From above downward they were:

1. Blocks of limestone fallen from the roof.
2. Black vegetable mold—three inches to one foot.
3. Stalagmite (granular)—three inches to five feet.
4. Black band, principally of charred wood.
5. Cave earth—light red loam.
6. Stalagmite—crystalline. Twelve feet.
7. Sandy deposit of breccia—no limestone.

In layers 1 and 2 were found bronze, stone, and Roman pottery. 3, 4, and 5 yielded flint and bone implements, as-

sociated with the bones of mammoth, cave bear, reindeer, Irish elk, horse, and other animals. A name had been cut on a boss of stalagmite and the date 1688. In a period of two hundred years, assuming the date correct, it had been covered by one-twentieth of an inch of lime deposit. Assuming this rate of deposit constant, a long period of time must be allowed for the formation of the stalagmitic floor which covered the implements and bones lying on the earlier and older floor.

Paleoliths Outside of Europe.—No implements of undoubted Paleolithic age have been found outside of the Old World. They have not been found—some geologists would say they have been found—in the New World; they are not known in any part of Oceania, neither in the Pacific nor in the western Atlantic islands. In Africa a few of undisputed age have been found, and it is probable that a Paleolithic culture along the Zambesi, near Victoria Falls, is established by the finds of Henry Balfour in 1907, and by more recent finds. Egypt remains doubtful. Implements of Paleolithic type have been found extensively on the maritime plains of Palestine, on the summits of the Judean mountains, on the uplands of Moab, and in the caves of Phœnicia. They are of Chellean or of Acheulean type. None have been found in the lower valley of the Jordan—perhaps because the Dead Sea then covered the region. Geological evidence of great age is, however, entirely lacking in Syria and along the southern fringe of the Mediterranean.

Neolithic Period.—The distinguishing characteristic of the Neolithic age is the presence of polished stone implements, but older Paleolithic forms persist by the side of Neolithic types. The Paleolithic is imperfectly linked up with the Neolithic by an intervening Mesolithic, a transition period. The beginning of the Neolithic is approximately synchronous with the beginning of the Recent age. The cold dry climate of the Magdalenian period has been succeeded by a warm and moist climate favorable to vegetation. The glaciers have retreated to their present Arctic Circle or to high altitudes.

The reindeer has gone into northern latitudes and the stag now takes its place.

The hunter of the Cave period has become an agriculturist and a herdsman. Evidence of social life is found in the clustering of habitations, represented by village sites, kitchen-middens, lake dwellings, Megalithic structures, the large number of skeletons associated in burial sites, the migration of symbols and of ornaments, and by the evidence of religious belief exhibited by the manner of burial. The center of dispersion of Neolithic culture was the basin of the Mediterranean.

The stone graves of Scandinavia are among the characteristic products of the Neolithic period in northern Europe. The simplest type is four-sided, with parallel sides, but there are many other forms. Five-sided forms occur very seldom. Much more frequent are the six-sided forms, in which five large stones are used, a smaller one being set up at the back. These are succeeded by round graves and corridor graves.

In one large kitchen-midden in Denmark, 86,000 objects and 20,300 fragments of bones of animals were found. The earliest strata contained implements of stone, stag, horn, bone, pottery, but no polished stone and no remains of the reindeer. The average size of the Danish kitchen-middens is from six to ten feet in height and from fifteen to twenty feet in diameter, although some are nearly twelve hundred yards long—almost three-fourths of a mile. Some have been used as burial places. The dog is the only domesticated animal found in them. The culture is similar to the Azilian, the culture terminating the Later Paleolithic in southern France. Similar mounds, built in large semicircles, are found in northern France.

Five types of burial were practiced:

1. In the earth, without protective covering.
2. In natural caves or rock shelters.
3. In dolmens or *allées couvertes*.
4. In artificial caves.
5. In cists or stone coffins.

In Scandinavia the giant graves which flourished in the Neolithic age gave place during the succeeding Bronze period to the large stone-lined cists which provided accommodation for more than one body.

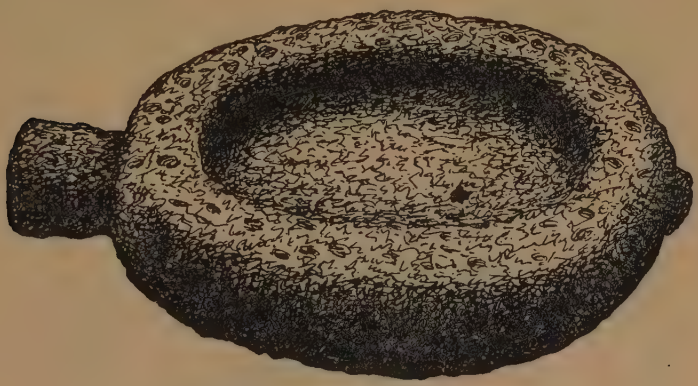


Fig. XI.—A Hawaiian Stone Dish.

At the zenith of the Neolithic industry many implements were perforated so that handles could be inserted. Ax-heads, hammers, clubs, tomahawks and other implements with perforations occur throughout the Neolithic world. The hole

Fig. XII.—Hawaiian Stone Mullers or Pestles.

was bored by the rotation of a circular stick or often a reed because the hollow area diminished the friction, wet sand being used to give a good cutting or grinding surface.

Of the dwelling-places of prehistoric man we know little. Not until the Mousterian period is there evidence of the occu-

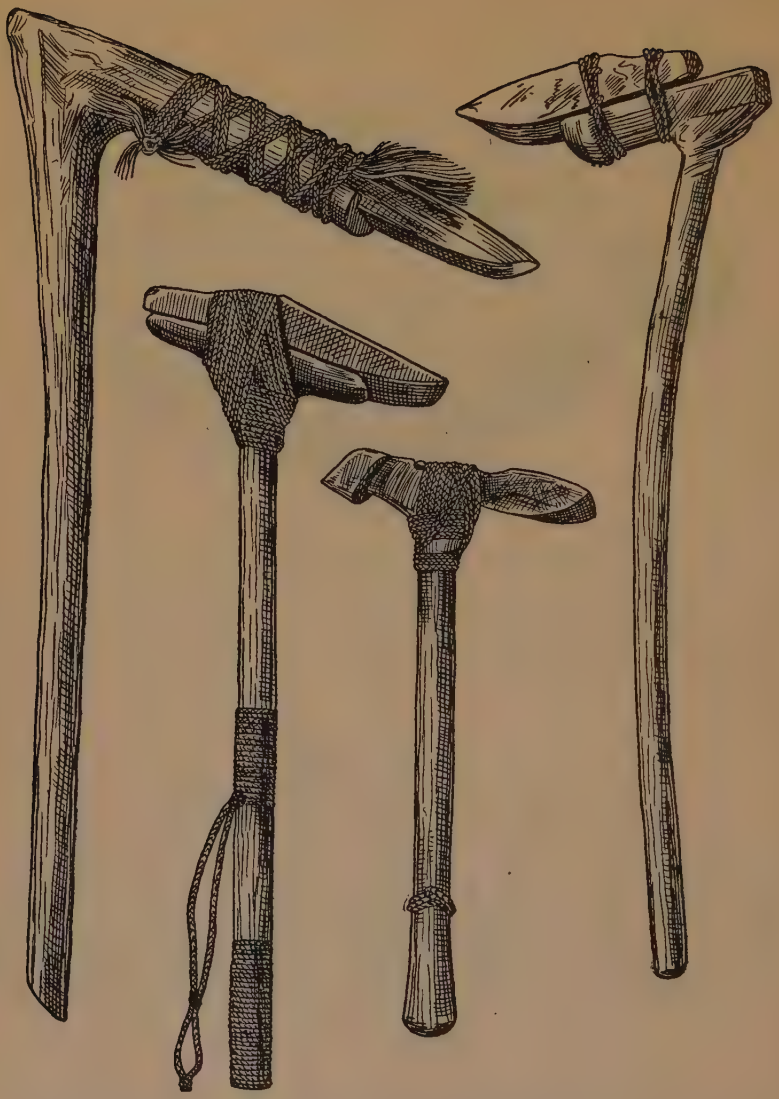


Fig. XIII.—Hafted Stone Adzes of Neolithic Type from Polynesian Islands.

pation of caves or the use of rock shelters, the latter being more extensively employed in the Magdalenian and other Upper Paleolithic periods. In northern Europe during the early Neolithic period man constructed shelters of interlaced branches daubed with mud and clay. In many instances huts of this kind were grouped in villages, protected frequently by a palisade. The lake-dwelling structures which predominate in Switzerland and the adjoining lake region of Germany and Austria were erected on piles driven into the water near the shore, to which a bridge gave access. A modification of this type is found in the terramara of Italy and the crannogs of the British Isles.

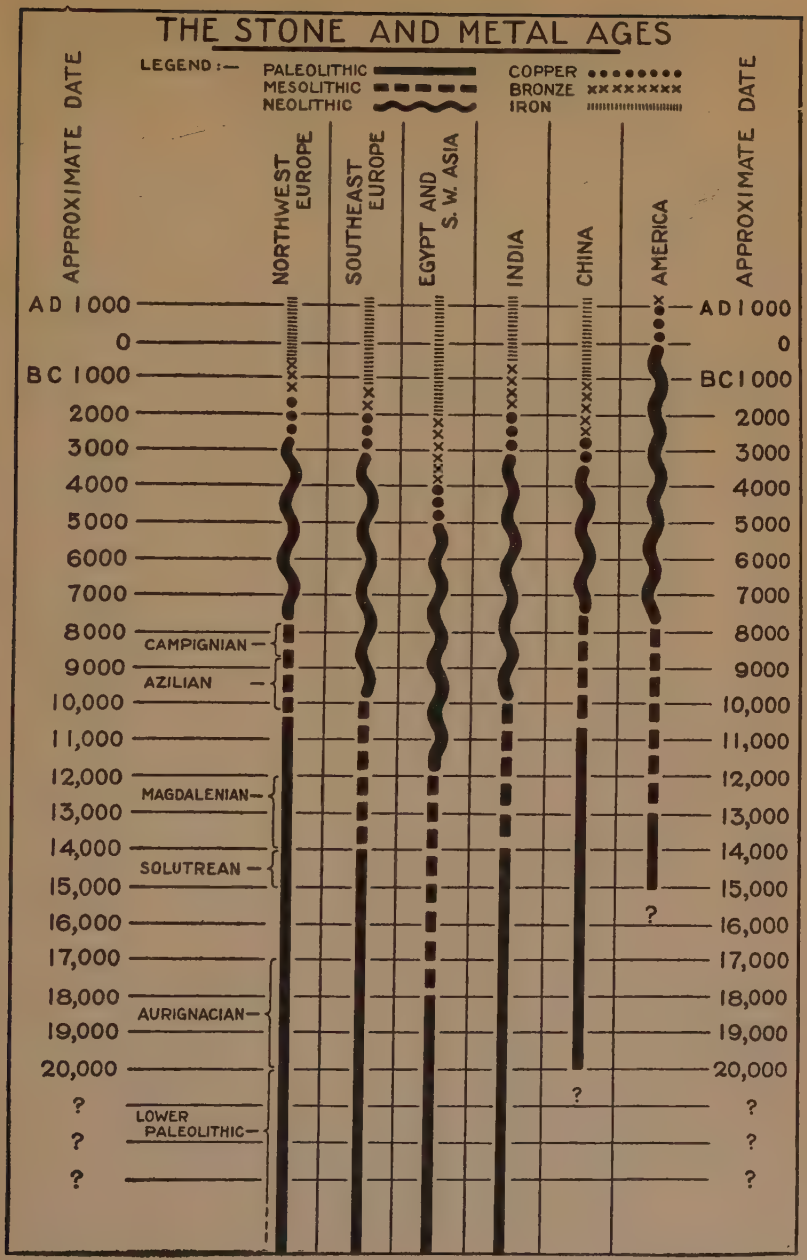
The changes which mark off the Neolithic from the Paleolithic are the following (adapted from Marcellin Boule, *Les Hommes Fossiles,* 2d Ed.):

CLOSE OF THE PALEOLITHIC	THE NEOLITHIC
Climate much colder than at present.	Climate practically that of the present.
Animals of dwindling or of emigrating species.	Animals identical with present fauna.
Man long-headed, nomadic, hunter. Rudimentary social grouping (?)	Man, dolichocephalic or brachycephalic, pastoral and agricultural. Social life more advanced.
Living generally in caves.	Living in the open: huts, lake-dwellings.
No domesticated animals or cultivated plants.	Domesticated animals and cultivated plants; cereals and textiles.
Stone work limited to chipping and flaking. No pottery.	Stone work in chipping, flaking, and polishing; quarrying. Pottery. Weaving.
No stone constructions.	Architecture primitive; Megalithic monuments; dolmens, menhirs.
Well-developed art.	Art rudimentary; activity utilitarian.
Rudimentary religious ideas.	Religious ideas and funeral practices more developed. More attention paid to disposal of corpse; funeral monuments.

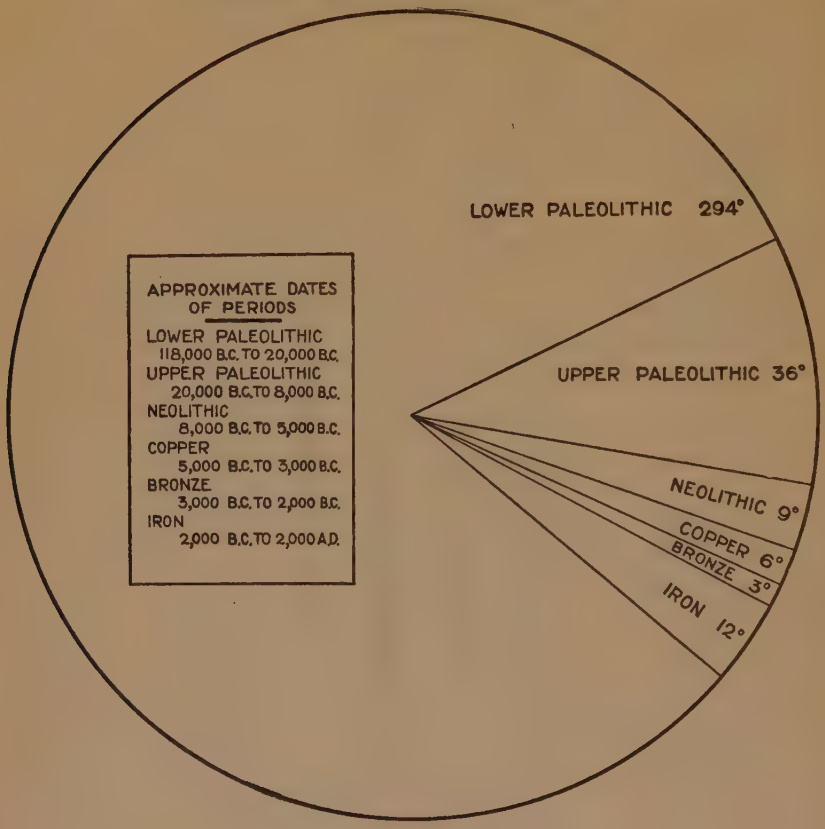
As Boule says, "the contrasts are numerous and striking."

THE PREHISTORIC (AFTER MARCELLIN BOULE)

Millennia B.C.	Western Europe	Asia-Minor, Crete, and the Orient	Chaldea and Egypt	Some Historical Facts
	Iron 900	Iron	Iron	50, Conquest of Gaul by Cæsar 390, Taking of Rome by the Gauls 600, Founding of Marseilles
1		1100		1189–1180, Trojan War
	Bronze	Bronze	1350	About 1400–Rameses II in Egypt –Minos I in Crete
2		2200		
	Copper 2500	Copper 3000	Bronze	
3	Acme of Neolithic	Neolithic	First objects of Bronze	Sumero-Akkadian Empire Sargon I, about 3800
4			Copper	Menes I, King of Egypt, about 4400
5				
6	Neolithic		Neolithic	Predynastic
7	7500			
8	Transition from Paleolithic (Azilian) 9000?			
9				
10	Close of Paleolithic			
		14,000? Beginning of Neolithic	?Beginning of Neolithic	


THE STONE AND METAL AGES
LEGEND :—
PALEOLITHIC
MESOLITHIC
NEOLITHIC
COPPER
BRONZE
IRON
APPROXIMATE DATE
NORTHWEST EUROPE
SOUTHEAST EUROPE
EGYPT AND S. W. ASIA
INDIA
CHINA
AMERICA
APPROXIMATE DATE
AD 1000
0
BC 1000
2000
3000
4000
5000
6000
7000
8000
9000
10,000
11,000
12,000
13,000
14,000
15,000
16,000
17,000
18,000
19,000
20,000
?
?
?
CAMPIGNIAN
AZILIAN
MAGDALENIAN
SOLUTREAN
AURIGNACIAN
LOWER PALEOLITHIC

THE PROPORTION OF THE METAL AGES TO THE LAST ONE HUNDRED AND TWENTY THOUSAND YEARS OF HISTORY (118,000 B.C. TO 2,000 A.D.)
SCALE: THREE DEGREES TO A THOUSAND YEARS



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See OSBORN, BOULE, MACCURDY, WILDER, BURKITT in the preceding bibliographies.

CHAPTER VI

THE METAL INDUSTRY

THE WORKING OF COPPER

THE Eneolithic, or Copper-Stone, age, succeeded the Neolithic. Copper is malleable, can be hammered into shape and annealed. It can be worked by the processes employed in the hammering or pecking of Neolithic tools.

Archeologists are not agreed as to the existence of a Copper age in Europe prior to the use of bronze. Some allege that the finds do not show that copper was used before bronze. A distinct copper industry antedating the working of bronze appears to be established only in Chaldea, Susa, Egypt, and the Ægean islands. It was possibly introduced into Egypt from Mesopotamia. From the Mediterranean, copper found its way into western, central and northern Europe, where it was modified by the respective Neolithic cultures into which it was introduced.

"Thus Eneolithic industry, properly speaking, is not a well-defined stage of human culture—it is only a transition phase, and nowhere does the appearance of copper modify the customs and usages of the Neolithic peoples. Copper represents neither an epoch nor any definite duration of time, since its propagation was irregular in progress according to different localities; and as the use of bronze came about in the same way, certain areas remained for a much longer period than others in this transition stage, as, for example, Hungary." [1]

In the New World, also, copper preceded bronze. It was used, along with stone implements, in the Lake Superior region and on the Northwest Coast. In Central America

[1] Jacques de Morgan, *Prehistoric Man, a General Outline of Prehistory*, p. 110. New York, 1925.

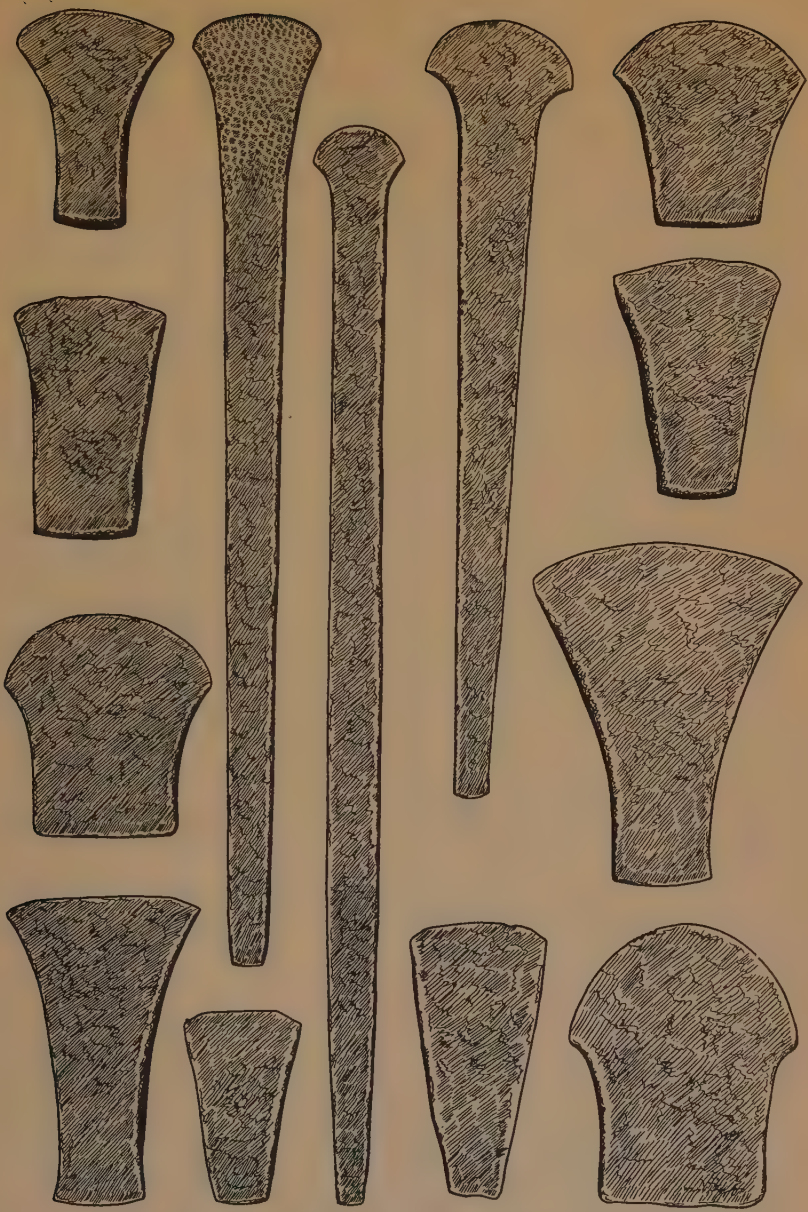

FIG. XIV.—COPPER IMPLEMENTS FROM CENTRAL INDIA.

An elongation of the thick short celt would give rise to long ones. A continuation of the process of thinning and lengthening the handle portion would give rise to such elongated types as are shown in the center of the figure. The implements shown here were found in a collection comprising over four hundred flat celts, as implements of this type are called, and many thin silver ornaments. Some of the earliest Irish celts resemble these, although in Asia there is not the evolution from flat to winged and then to socketed celt which is found in Europe.

copper was used at least as early as bronze and in some localities before bronze. Copper was sometimes smelted, a process which no doubt paved the way to the working of bronze there as it had done in the Old World.

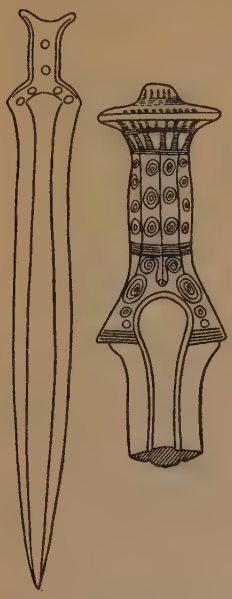

FIG. XV.—A LEAF-SHAPED SWORD OF THE BRONZE AGE AND A BRONZE HILT OF THE SAME PERIOD.

Several types of sword were in use during the Bronze Age, the type shown here occurring with greatest frequency in Hungary, though even there it is not the prevalent type. The elaborate decorations usually found on them suggest to one archeologist that they were used by chiefs or wealthy fighters, other types characterizing the rank and file.

The qualities of the respective metals would lead us to infer the development of copper prior to bronze or iron. Copper is virtually a metal-stone; it can be hammered into shape by the stone artificer. Bronze calls for more complex processes, involving the use of two metals, of fire, and of molds; iron is seldom pure and must be separated from the ore in which it is imbedded. The smelting of iron requires a more intense heat than the smelting of tin or copper, the two metals which compose bronze. Archeology abundantly confirms the sequence of stone, bronze, iron.

The Bronze Age.—In grave after grave bronze is found in strata beneath those yielding iron, and this order is not reversed. This is the conclusive argument as to sequence. Much literary and linguistic evidence supplements the archeology.

Hesiod (about 800 B.C.) and Lucretius (96?-55 B.C.) speak of an age of bronze preceding iron and following upon an age in which only stone was used. The early literatures indicate the priority of bronze to iron. In the Pentateuch iron is mentioned only thirteen times, there being thirty-four references to bronze (the "brass" of the translators); in the Iliad iron is mentioned twenty-three times, bronze three hundred and sixty times; in the Odyssey there is mention of iron twenty-five times and of bronze ninety times, indicating that the use of iron had not

yet become as common as that of bronze. Linguistic evidence confirms this assumption. The Greek word *chalkeus,* "bronze worker," is later used to indicate "smith" or "worker in metals."

In Aztec the word *tapuztli* originally meant "hatchet," then "bronze," later "iron," finally coming to stand for all of these. *Æs,* the Latin word for "copper," is found in dialectic form in all Indo-Germanic languages, being later applied to bronze. The German word for iron, *Eis,* clearly is derived from *æs.* In contrast to the uniformity in the words for bronze, the word for iron used in various Indo-Germanic languages shows great divergences.

The uses of the respective metals in religion are further index to the order of development. Religion is conservative of the old and frowns upon innovation. The metal objects in the Hebrew temple were of bronze (not brass), iron not being employed, although accessible. Religious conservatism forbade the use of the new metal; indeed, the sound of iron was not heard in the temple area during the construction of the sacred edifice. In Greek and Roman religion bronze or stone was used to the exclusion of iron at a period when iron was in common use in secular life.

The following table shows the difference in time in the beginning of the Bronze and Iron ages in various parts of Europe. The estimate of dates differs with authorities, but the relative differences between various localities are fairly constant:

BEGINNINGS OF THE METAL INDUSTRY IN EUROPE (AFTER MONTELIUS)

Year B.C.	Central Italy	Central Europe	Great Britain and Ireland	Scandinavia and North Germany
2500–1900....	Copper and stone	Copper and stone	Copper and stone	Copper and stone
1800.....	Bronze	Bronze	Bronze	Bronze
1000.....	Iron	Bronze	Bronze	Bronze
800.....	Iron	Iron (Hallstatt)	Iron (late Celtic)	Bronze
600.....	Iron	Iron	Iron	Transition to iron
400.....	Historical times	Iron	Iron	Iron

The difference in time in the onset of the copper and the bronze cultures, respectively, is shown in the following table (from Tyler):

BEGINNINGS OF COPPER AND OF BRONZE

	Copper	Bronze
	B.C.	B.C.
Egypt and Chaldea	5000	3000
Troy, Greece and Sicily	3000	2500
Hungary, Spain	3000	2000
Middle Europe, France	2500	2000
North Germany, Scandinavia	2500	1900

That copper gradually displaced stone, and bronze displaced copper is shown by the following table (after Forrer):

TABLE SHOWING OVERLAPPING OF STONE, COPPER, AND BRONZE

Period	Percentage of		
	Stone	Copper	Bronze
Early Neolithic	100	0	0
Middle Neolithic	99	1	0
Late Neolithic	90	10	0
Eneolithic (first phase)	75	25	0
Eneolithic (second phase)	50	50	0
Eneolithic (third phase)	40	50	10
Bronze (earliest)	30	30	40
Bronze (early)	15	15	70
Bronze (middle)	3	3	94

Thus there is no break between the Neolithic, the transitional Copper, and the subsequent Bronze age. The Bronze and Copper types influence surviving Neolithic types; implements of all three materials exist side by side, showing overlapping of the periods as well as of the types. Metal working began in the Mediterranean area, whence the culture spread along sea and river, penetrating Scandinavia by way of the Rhine and Danube routes, thence going to Ireland, though some of the Early Irish influence comes from the Iberian

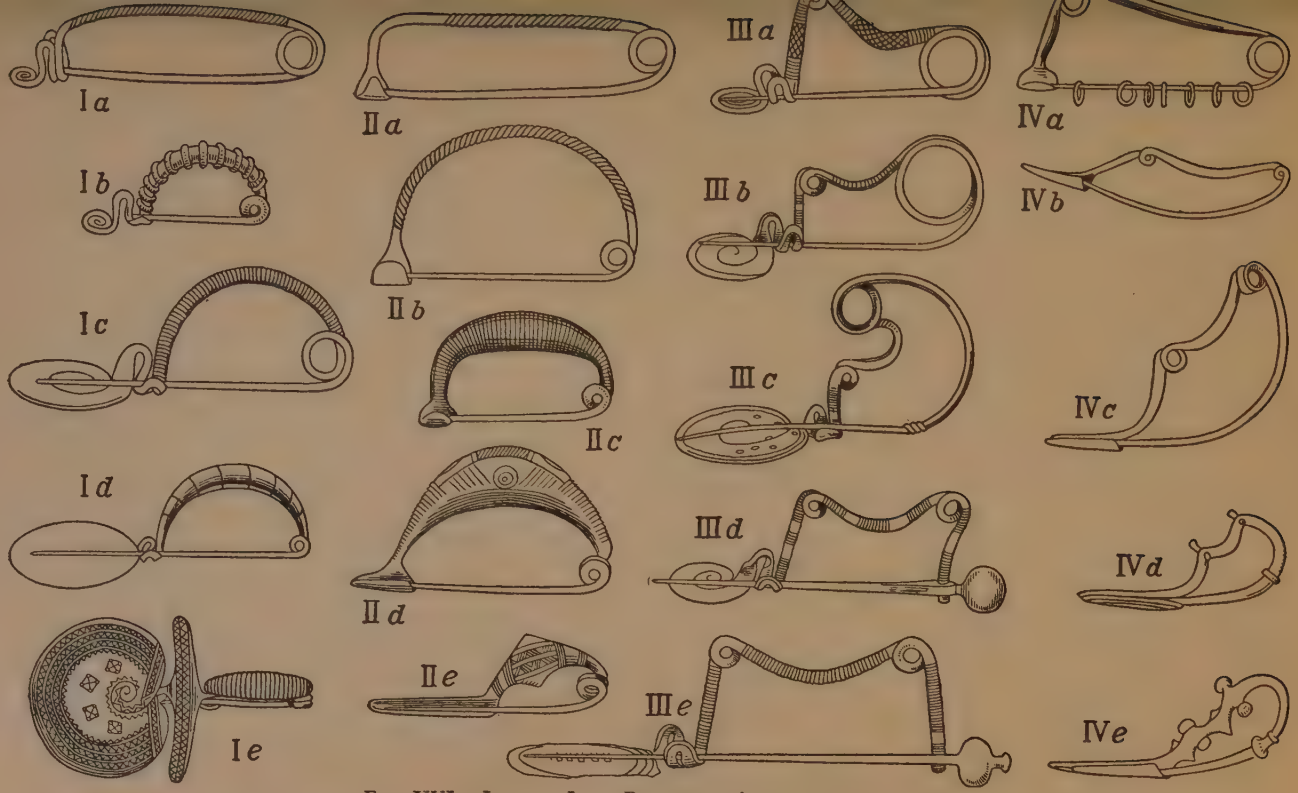

FIG. XVI.—ITALIAN IRON BROOCHES, ANTEDATING 400 B.C.

The four series show the evolution of the brooch in prehistoric times. Beginning with the upper left-hand figure, read the columns downward (Ia to Ie, IIa to IIe, and so on).

In Ib, for example, transverse moldings are added to the type of Ia and the bow portion is stout and arched, but otherwise the type of Ia is fairly well reflected in Ib; the single loops at the head and the flat spiral coil beyond the catch are emphasized. In Ie the catch has been much enlarged and is covered with ornamental designs. Note the changes shown in each of the other series.

Peninsula. In Ireland the transitional Copper age came to an end about 2000-1800 B.C., though stone implements remained largely in use. The Bronze age, which began there about 1800 B.C., is divided into several parts, each with characteristic types. The first of these periods, 1800-1500 B.C., is distinguished by the occurrence of flat bronze celts, small daggers, halberts, jet buttons, necklaces of jet. In the second period, 1500-1250 B.C., there are flayed celts with stop-ridges, tanged spear-heads, large dagger blades sometimes with bronze handles. Further development is marked in the next period, 1280-900 B.C.

Iron Age.—As indicated above, the onset of the Iron age differs in point of time as well as in types of implements in different parts of Europe. The place of origin is the Mediterranean region, possibly the land of the Hittites, in Asia Minor, whence iron spread, as bronze had done, throughout Europe and the British Isles, and also eastward. Iron did not reach Scandinavia until about 500 B.C., a thousand years after it had come into use in the Ægean area. The Early Iron age lasted in Scandinavia until about A.D. 500, the Late Iron age from A.D. 500 to about A.D. 1050, the age of the *Vikings*.

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Part Three

ECONOMIC AND INDUSTRIAL ACTIVITIES

THE older vague accounts of the economic and industrial stages of human progress are giving place to more accurate descriptions of the actual economic and industrial activities of primitive man.

There is a fishing stage, but its character and importance vary from area to area. The methods by which fish are procured in one area are not identical with those utilized in other areas. A like statement applies to all phases of economic activities.

In few areas are we able to trace the evolution of these activities. We know that agriculture is more recent than hunting and fishing, for prehistoric records confirm this inference. Even without it we could infer as much from a study of culture, since man does not go into culture unprepared by preceding arts and artifices, and early in his career he would almost certainly live by the simpler methods of securing animal and plant foods.

He must have started out on his career scarcely better equipped than the other higher animals about him, but, even so, there is no reason to suppose that every suggestion for advance in those early days must have come from non-human sources. It is not likely that the spider taught him to weave, the beaver to build houses, the tortoise to put on a shield for defensive armor, the ant to take slaves. He probably learned these things out of his own experience, modifying here a little, there a little, the accomplishments already realized.

Man moved forward gradually, but not everywhere in the same direction nor with the same speed. Hence through long periods of time he developed in each area a distinctive culture. This has not been stationary; changes have gone on everywhere in savagery, though not with the same rapidity as in civilization. But no primitive culture is static.

CHAPTER VII

PHYSICAL ENVIRONMENT AND CULTURE

"Man entered painfully on his kingdom. He was defenceless and naked."—ANATOLE FRANCE.

PHYSICAL ENVIRONMENT

MAN is dependent upon his environment. He can no more escape it than he can dodge the forces of gravitation and he is as surely fashioned by the one as by the other. Of the evidence of adaptation to an earlier arboreal environment and later adaptation to surface environment we have spoken in a previous chapter. It may be that man abandoned arboreal life because it was abandoning him and so was forced to earth in that Asiatic clime where our forbears underwent an evolution not vouchsafed to less fortunate, because too fortunate, simian relations, whose more constant environment compelled no new adaptation. In the end the difficult environment proved the favorable one, for it developed potentialities which otherwise would have lain dormant and atrophied in disuse.

Potentialities develop only when they function. Conformity to environment does not insure progress, but may purchase immediate survival at the expense of subsequent survival. Shell-fish conform to environment more completely than do the higher animals. Higher forms find complete adaptation to environment impossible; new possibilities are revealed and a fresh ingenuity meets the new needs. Hence the environment to which man conforms is as important as the degree of conformity to it.

The apes are better adapted to jungle and to arboreal life than is man. Man conforms to other environment, thereby making himself a different sort of creature, satisfying another plane of needs.

It has been alleged that environment is the deciding factor in human culture, that it makes or unmakes a people, determining whether it shall rise to prominence in world affairs or sink into insignificance. Following Bodin, Montesquieu points out the extent to which civilization is correlated with climatic zones, the civilized peoples living in the temperate zones, whereas the fates of the less advanced people confine them to the extremes of heat or cold. As a result of the great heat of the tropics, Montesquieu says, man loses energy and initiative; Nature blandly conspires against him, for she is bountiful, furnishing him with food which demands scarcely an effort upon his part. In the frigid zones man must prodigally expend his stores of energy to maintain life and secure comfort. Only in the temperate zones do climatic conditions insure advance, stimulus, adequate reward for effort, and the leisure indispensable to development of the arts which make civilization. Ellsworth Huntington emphasizes the molding power of the physical environment, especially the factor of climate: climate means civilization or the absence of it. The objection that throughout history there has been a shifting in the center of civilization he answers by alleging that there has been a shifting in climatic zones preceding the shifts in the center of civilization. Such a transformation in climatic conditions, he declares, has accompanied the fall of civilization in Palestine, Greece, Rome, and ancient Mexico. Contemporary world power is interpreted in terms of the stimulus of a favorable climate. Experiments and observations in factories and in schools show that energy fluctuates with changes in temperature and in atmospheric conditions.

It is true that certain climatic conditions are favorable to civilization and others are unfavorable. Yet these are only conditions. Save beyond certain limits, Nature can impose upon man nothing more than alternatives. He can do well where conditions are unfavorable; he can do poorly where they are favorable. In a word, man is more than a creature of the environment. With advance in civilization he is able more and more to escape the exactions of the environment, to impose his will more masterfully upon Nature, to conquer

his conqueror. Some point to the correlation between man's economic life and his geographical environment and accept the correlation as evidence of the influence of physical environment. In reality the correlation shows the extent to which man has adapted himself to the environment, the extent to which he has compelled it to minister to his needs, to serve his purposes, to respond to his will. We do not find canoes in the Sahara Desert. If the converse of the picture is that the environment does not drive man to build canoes, the obverse is that enterprises other than canoe-building insure salvation.

Moreover, where geographical conditions are the same or similar we do not always find a same or even a similar reaction to them. Indeed, the character of the reaction to the geographical environment depends not so much upon the nature of the environment as upon the nature of the culture transplanted to the environment.

The degree and kind of adaptation to physical environment depend upon the will, the training, the social inheritance of those who inhabit a given locality. If we wish to predict what a people will do when they move into a new environment, it is more important to know the people than to know the place, and, in fact, one must know both. As Pasteur remarks, "Chance favors only the mind which is prepared." Nietzsche leaves out of the reckoning one of the important factors of progress when he declares, "If thou knewest a people's need, its land, its sky, and its neighbor, then wouldst thou divine the law of its surmountings, and why it climbeth up that ladder to its hopes." The people themselves are one of the factors in their progress, and, indeed, the most important factor.

The Eskimos live in a frigid climate where life, to a tropical people, would seem unendurable. Yet they fashion out of their harsh environment a fairly comfortable existence fraught with many of the amenities of savage life. Their ingenuity devises many mechanical contrivances which make the possession of game assured, if not easy, while in their leisure time they give play to esthetic impulses, for these are not thwarted by the lack of wood and other soft material. In a word,

wherever we turn, we find that though the environment limits man, nevertheless it is largely what man makes of it: "To nothing he comes without a device." The environment imposes the limiting conditions upon man, but until we know the culture we do not know what they are. The Imperial Valley, in California, was a forbidding place to Indians, an environment with which they could not cope; to the white man it became one of the most fertile regions in the United States. Here the culture cannot be explained in terms of the environment, for we do not know the potentiality of the environment until we know the potency of the culture. Coal becomes the basis of civilization, but not until civilization learns to utilize it. Former civilizations possessed it—if they had but known it; knowledge, however, is an essential element in the utilization of environment. The environment does not operate save upon the mind of man; or perhaps it is more accurate to say that the mind of man operates upon the environment.

The meaning contained in "environment" is, therefore, dependent upon the culture, and can be ascertained only by reference to it. "Environment" by itself can create nothing when the soil is unprepared. Coal, water, and iron have always existed, but it was not till "the appointed time" that a man thought of bringing them together and making a steam-engine.

Since man must always live in some geographical environment and must cope with the forces of nature if he is to survive, must wring a living from the land or the sea, it is obvious that his culture is never unrelated to the physical conditions amid which he lives.

But since man must meet these conditions, or confess his inability to cope with them, it is obvious that he is one of the chief agencies in his salvation, and that without acquaintance with him we cannot know how he will react. To explain human progress in terms of physical environment is, therefore, futile, in fact meaningless.

The culture which meets us in area after area is related to the environment, but man does the relating. Nor do we find that a same environment is always inhabited by the same sort

of culture, though this would be the case did the environment elicit the culture. Culture itself has a geographical distribution, as definite as temperature, winds, rainfall, and other physical conditions. But to a large extent the culture in one area determines the character of the culture in an adjacent region, so that culture has a comparative independence from physical conditions.

The culture of savagery is, moreover, not uniform, but varies greatly from area to area, and something of its geographical distribution must be grasped if one is to understand the life of primitive man. Savage life cannot be described under any one formula, since any formula applies in a different manner for each culture area, and what is applicable to some may be wholly inapplicable to others.

CULTURE

Whatever the determinants of culture may be, it has a geographical distribution, as surely as have forms of animal life. A given geographical area, for example, has its own peculiar animal life, distinct in its totality from that of a distant region, though many of the forms in the one area may be duplicated in another. Moreover, generally speaking, the forms of animal life in an adjacent region are more like those of a given territory than are those of a distant area.

To a large extent this is true of primitive culture, as to an extent it is true of higher culture, even of western European civilization, which has a regional distribution. Generally speaking, the culture of a region is more like that of the adjoining area than like that of a remote region, so that the farther we travel from a given area the greater the differences exhibited in the cultures. As in the case of animal life, there are many exceptions to this general law, but it is the law, nevertheless.

There is, in other words, no one form of culture distinctive of those peoples whom in contrast with Europeans we describe as primitive. Primitive culture is not one, but many, not a uniformity which meets us wherever we encounter the savage,

but a multiplicity affording innumerable examples of different culture complexes.

We define the savage by contrasting his culture with that of the European. But this does not tell us anything positive about his culture, which has manifold types or patterns. Only acquaintance with the respective patterns gives an adequate idea of the positive attributes of primitive cultures. Thus we may call contemporary American civilization non-European (though historically, of course, it is European), but this would leave us unenlightened as to the positive attributes which mark off civilization on this side of the Atlantic from that of the Old World. Only an account of the government, economic institutions, social and educational life, and all those attributes which constitute our culture, would describe the manner in which we differ from Europeans.

Similarly, when we speak of aboriginal American culture we indicate attributes which mark it off from the culture of negroes and from that of Australians, Polynesians, or other peoples.

But there are few if any traits which are common to the aborigines of the New World and mark them off, tribe by tribe, from the aborigines of other parts of the world. The American Indian differs in culture from region to region, and the Eskimo is as little like the Aztec in civilization as the Englishman is like the Kafir. Briefly, we would be forced to define regions of the New World in which similar culture flourishes, each region being more or less distinct in culture from any other region. The Eskimos of the north littoral comprise a culture area. The peoples of the Northwest Coast comprise another; those of the Plains area another; those of the north Woodland area another; those of northern, central, and southern California as many others; in the Southwest of the United States is a distinct culture area; so on the plateau of Mexico; another culture flourishes in Yucatan and Honduras; another in Colombia and Bolivia; another in the Andean region of Peru; another in the Pampas of Argentina; the peoples about Cape Horn are of another culture stratum; in Brazil there is another culture area.

In short, the aboriginal New World is divisible into culture areas, although the boundaries are overlapping rather than clear cut, not sharply defined as are political boundaries.

In Africa the culture of the Equatorial West Coast is different from that of Liberia, Nigeria, or the Kamerun, while Central Africa supports cultures different from those of South Africa.

India has many cultures, though we do not know their nature or their boundaries with any thoroughness. Certainly the culture of a tribe like the Todas differs markedly from that of tribes in northeast India and from that of other tribes in south India.

Australia is not an undifferentiated culture area, but there are different forms of culture in the southeast, the northeast, the west, the central portion, and again in the Northern portion about the Gulf of Carpentaria. The Torres Straits is another culture area.

Many of the islands of Oceania, from Hawaii to New Zealand, are in one culture area, known as Polynesia, while other islands, such as the Solomons, Florida, Isabel, a portion of New Guinea, are in a culture area known as Melanesia. Other islands comprise a culture area known as Micronesia. Each of these has its subdivisions, but each is a large, clearly marked culture area.

So one might continue, were there sufficiently intimate descriptions of the peoples at hand, and divide the entire inhabited world into culture areas. And since each culture is in a measure distinct from every other, it follows that what is applicable to one area is never totally applicable to another. It follows, too, that if we find one form of industrial enterprise in a given area, we may expect to find other characteristics in another area. Thus we find fishing practiced by Iroquois, negro tribes, and Australian tribes, as well as by a host of others, yet the methods of securing fish practiced by the Iroquois are not duplicated in their entirety in any other part of the world, and a like statement is applicable to Australian, African, Siberian, Melanesian, or other methods of securing fish. As this applies to the securing of fish, so it applies to

social organization, religious ideas, political structure, and so on throughout the list of culture traits. In order to give an account of any culture feature of savagery, therefore, it will be necessary to point out some of the divergences from area to area. Only so can one obtain a picture of primitive culture in its diversified reality.

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CHAPTER VIII

FISHING

FISHING was practiced in Paleolithic times—in the Magdalenian period both the fish gouge and the barbed hook were used—though evidence of fishing is not abundant until well on in the Neolithic. In the lake-dwelling settlements of the Bronze age are fish-hooks of sheet bronze, some of them fashioned in the form of fish, and there is other abundant evidence that the people were fishers. The kitchen-middens and shell heaps of the Baltic region were left by people who lived largely on products of the sea. With few exceptions, peoples who live near waters in which there are edible fish are fishers.

METHODS OF SECURING FISH

Some of the methods used in securing fish or shell-fish are simple, some complex, many are ingenious. In some instances co-operation on the part of a number of people is involved. In Assam, Kachari women go out into the stream, spreading out into two long lines approaching from opposite sides, driving the fish ahead, scooping them up in the inclosed space in which the fish have been confined. In Australia and in Africa similar co-operation is found.

In the Torres Straits, fish-hooks of turtle shell are used. Also a sucker-fish is let down to attach itself to the back of a terrapin or a turtle—the inspiration to the British for a method of recovering coal dropped from the barges at Saloniki during the World War. In the Torres Straits and off the coast of New Guinea a flying kite is sent up from a canoe; from the kite dangles a weblike skein in which the teeth of the fish become entangled as it snaps at the bait. Fishing-nets also are employed. In Java, where hand-nets as well as large seines are used, the net is baited at various places with the claws of crabs. In the island of Luzon, Philippines, a fish

which the natives call smarapan is gotten out of Buhl, a mountain lake, by dipping with a net of exceedingly fine mesh. Though the fish is very small, weighing only half a grain and being but half an inch in length, it is greatly esteemed as a delicacy.

The Chinese train cormorants to catch fish. A leather ring placed around the neck of the bird prevents it from swallowing the prey. For its efforts the bird is rewarded with food. In parts of Japan the cormorant is in common use. It is employed on the Indus, as are also the pelican and the otter, for a similar purpose. Early seventeenth-century attempts to introduce cormorant fishing into England failed.

The Dyaks secure fish by angling, by diving into rocky pools and pulling fish from the holes, by scoop nets, used principally by the women, by casting-nets, by barbed or pronged spears, by traps of various sizes, by torchlight, using spear and hand-net, and by poison. In Borneo, Java, Sumatra, and Ceylon, poisoning the water is one of the prevalent methods of securing fish, roots, bark, leaves, and the fruits of several different plants of various species being used for this purpose.

Australians take fish by means of weirs, dams, and nets, and capture fresh-water turtle similarly. At night they use the torch and the spear. On the Murray they dive with nets; they use the spear and the throwing-stick; a large party co-operates in the diving and spearing of fish from under water. Fresh-water lobsters are secured by spearing. Women collect crawfish. When the backwater creeks of the river are flooded and fish have entered the estuaries, the men build weirs across them, thus trapping the fish left by the retreating water. Along the Darling, natives use their toes to pick up fresh-water mussels from lagoon and river. At Great Banda Island extensive bamboo fish weirs are erected on the shoals. There are also fish pots of bamboo, made on the pattern of the common drum net, let down in the shoal water at night and taken up the following morning. On the Fish River, the bait is placed at the end of a spear and the fish is transfixed when it comes to nibble. In New South Wales fish-hooks of shell, or talons of the eagle or the hawk, are

used. The native "submarines" fish, submerging himself and using the spear under water. For the capture of turtle he employs the harpoon. In many tribes, as, for example, in the Parnkallas and the Nanos, at Coffin's Bay, are special types of spears for fishing, spears with additional prongs. The Moorundi, on the lower Murray, spear fish from bark canoes, or catch them by the aid of rude hooks.

In the Celebes a number of lofty bamboo scaffoldings are built above the sea; from these the natives watch for the shoals of fish which enter the bay.

On the Caroline Islands are fish weirs of coral blocks, covered at high tide with about a foot of water. Some are of considerable antiquity, tradition assigning their origin to a pupil of the goddess Le'gerem. Other weirs are made of cane or of reed. Large stake-nets and seine-nets are used for catching turtle and big fish; small seine nets, small casting-nets, and hand-nets being used for smaller fish. They also employ a hook on the body of which is bright mother-of-pearl to attract the fish. In the lagoons the water is poisoned with a root, in order to kill fish too small to be taken in a net or caught with the hands.

Samoans have fishing-nets ranging from eighteen inches square to the seine a hundred feet long. A hundred men muster some twenty nets, join these, and take large quantities of mullet and other fish in the lagoons. They fish with a small pearl shell resembling a fish, on the under side of which is a hook made of tortoise shell. Two small white feathers conceal the point of the hook and simulate fins. The pearl shell-fish cast adrift at the stern of a canoe serves to procure a liberal quantity of fish. A similar method is employed in Melanesia and among the Eskimos.

Marquesans stupefy fish by means of poisonous mashed roots which the fisherman distributes in the water by diving, the fish being taken when they rise, stupefied, to the surface.

The Maoris attach a thin layer of iridescent pawa shell to a piece of wood; its glittering in the water gives it the semblance of a fish and serves as a bait. They also use nets and weirs.

They fasten a net between two canoes, and into this drive the fish by means of a pole at the end of which is a large tuft of grass. When the mako, a species of shark, is seen moving below the surface of the water near the canoe, a baited barbed hook is let down; when the shark lowers its head to the bait a noose is deftly slipped over its tail. When it has hauled the canoe about until its strength is nearly exhausted, they cut off its head. They eat eels, mussels, and other shell-fish, as well as crawfish, which last they obtain by diving.

In Dahomey, as in the lake regions of Central Africa, fishing constitutes an important economic pursuit, being carried on by practically all who live on lagoons or lakes. The fish basket-trap is used extensively in Africa.

Many methods of procuring fish prevailed in the New World. The ancient Mexicans used hooks, nets, harpoons, and weirs. Throughout North and South America, with local exceptions, the fishing-net and the fish-hook are found, and both occur abundantly in archeological finds. In some tribes, as notably in the eastern Plains area and in the Southwest, there is a tabu against the eating of fish. In British Guiana fish are caught in river flats inclosed by palisades to stay the fish when the tide recedes. At some places weirs of stakes or of reeds are put across the creek at two points, to inclose the fish. In pools a root is used to poison the water. In some places the fisher sets a rod bent into the form of a spring, which is let loose when a fish jerks the line, causing the rod to spring back; otherwise other fish soon would eat the one on the hook.

In North Carolina Indians captured crawfish by letting down half-roasted venison on reeds; by this means they soon secured an abundance. They procured small shell-fish by letting down oysters to which the shell-fish attached themselves, being then drawn up. Virginia Indians captured sturgeon in small streams by slipping a noose over the tail of the fish and snatching the cord tight. The Wishram, of northern California, erected weirs at cascades. From a rope held by two posts, slanting toward each other, was suspended a basket

trap into which the white salmon fell when attempting to jump past.

The Omahas secure fish by means of a weir of willows tied together, taken into deep water by a company of men or women, some holding the ends upright, others the center; all walk upstream, pushing the fence of willows before them, driving the fish into shallow water, where they are shot, speared, or caught by hand. The Shoshones use a harpoon spear. The Mohaves make fish-hooks of cactus spines, the locust spine being used in a similar manner by the Indians of Maryland and Virginia—a method known to the peasants in many parts of Europe.

The Nenenot have fish-hooks of two bones which lie parallel when baited, so arranged as to separate when a fish bites and a pull is given to the line, the bones assuming a position at right angles to each other, stretching across the jaws of the fish. The Montagnais spear fish at night from the bow of a canoe, where a torch is carried, a method extensively practiced by the northern Iroquois.

Greenland Eskimos catch salmon under stones with the hands or strike them with a prong of bone or iron. When the salmon ascend from the sea into the rivers, the natives build a weir of stones across the mouth of the stream at low tide; over these the fish pass with the tide, being left in the shallows at the ensuing ebb. The central Eskimos use a small ivory fish, or a bear's tooth, for bait. This is attached to a separate line, which the fisher moves up and down to attract the fish; when they come within range he spears them. When fishing for the Lasher bullhead the Eskimos bait with a white bone, a glass bead, or a piece of red cloth. The smaller species of whales they catch as they do seals, harpooning them or driving them into bays and running them aground.

In many parts of North America it was customary to close up the gaps in swollen streams with a network of brush, the imprisoned fish being captured when the water subsided. On Vancouver Island the Indians troll for salmon in a fast canoe, towing behind them a long line made of tough seaweed, to which is attached, by means of slips of deer hide, an oval piece

of smooth granite the size and shape of a goose egg. It acts as a sinker, at the same time spinning the bait. The Hurons used a wooden hook and a line of hemp. They made nets of hemp, in the winter inserting them through holes in the ice. They placed hurdles in streams and nets across openings. The Oneidas made pounds by driving two rows of stakes across the stream; in these the fish were easily captured. In the year 1753 the Onondagas had six weirs between Oneida and Cross Lakes. They placed a row of stakes across the stream, interwove these with branches, and drove the fish down the creek into the entanglement. Another row of stakes was placed behind this so as to inclose the fish, which were then speared.

The Iroquois used various kinds of weirs, large numbers of fish being driven into them. Some they built of stone. One of these, a stone wall several hundred feet in extent, running in a zigzag direction across the stream, is still standing (or was a few years ago) in the Seneca River. The dams were so well constructed that they caught both the eels which descended and the salmon which ascended. The Iroquois made extensive use of the net, especially in the capture of the smaller fish in the rifts and shallow places of streams where most fishing camps were located. Here they could employ their favorite device, either as a scoop-net or as a seine. Nets were used in summer and in winter.

A long net, made of a rope of wild vine, with a fringe of branches about six feet long, was used to sweep the stream; members of the party walked along each bank and held the ends of the wild-vine rope, while others supported the middle with wooden forks; at the weir men stood on each side of the central opening with poles, driving the fish into a large perforated box. Other Indians stationed in canoes took out the fish. By this method sometimes more than a thousand fish were caught in one day. Before the coming of the whites they used bone fish-hooks. They also shot fish with the arrow, the native standing in the stream if the water was shallow, in a canoe if the water was deep. More commonly the barbed spear was used. It is said that in season a man sometimes speared as many as a thousand eels in a night.

Siberian tribes take fish by means of spears, or in a bag-net attached to long poles inserted through holes in the ice. The bag is so arranged that the struggling of the fish which enter it causes the opening to close automatically, thus securely imprisoning them. When these great screens are let down the whole settlement assembles on the ice, men, women, and children, making a great uproar, the object being to drive the fish into the nets.

THE CURING OF FISH

The preservation of fish is not unknown to savages, though not practiced by most tribes. The Mandingoes preserve fish by drying them in the sun and afterward rubbing them with Shea butter to prevent their contracting fresh moisture. The Dahoman dries them in the sun for four or five days, after which they will keep if protected from the humidity, or he smokes them in the shade, the process continuing for several days. Fish fresh, dried, or smoked, abound in this area.

FISH CULTURE

The Chinese method of fish-breeding, like the Roman, consisted in gathering from collecting-fences, constructed for the purpose, eggs which had been fertilized naturally. These were carried, sometimes hundreds of miles, to ponds or streams for natural hatching. The young fry were carefully guarded and fed. Similarity with Roman methods suggests borrowing, although we do not know the place of origin.

Though fish culture did not reach any high stage among savages, it is incipient in some of the more highly developed tribes. In the Caroline Islands were fish ponds into which young fish were placed to grow. On Pern, one of the Gilbert group, a system of salt-water fish pools was common. Superfluous fish, and especially small ones, taken along the beach, were put into these pools, where they throve well and furnished a constant supply to several families. The industry flourished in Hawaii. The natives of Cuba, when first discovered, are said to have had stocked fish ponds.

MAGIC

In connection with fishing, magic is employed and tabus must be observed. This applies especially to turtle and dugong fishing in the Torres Straits, and to much of the fishing about the Malay Peninsula. In some places the Malays, when fishing, use a special dialect, believing that every-day speech would bring them ill luck; the fish would understand if people spoke the usual language.

When the natives of New Guinea go out on a fishing expedition no one in the party may speak; when they go out for turtle, all in the village must be quiet. The people go to their houses and sit still. No sound of voice, nor chopping of firewood, nor any activity is allowed, until it is supposed the fishing party is clear of the lagoon and out into the deep ocean. Among the Thonga, of South Africa, numerous tabus are imposed upon the villagers while a fishing party is under way.

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CHAPTER IX

HUNTING

HUNTING is one of the oldest occupations of man. The arrow-heads and harpoon-heads of the cave men of Magdalenian times point to the occupation of hunters, and many of the earlier implements of Paleolithic man doubtless were spear-heads.

The devices used by savages in taking game are numerous. In the northern parts of both the New World and the Old natives took deer by running them down. This they could do when the snow began to melt, for then the hunters, traveling on snowshoes, could easily overtake the larger animals, which were helpless prey in the soft snow. Or the animal was smoked out. In this manner the Maoris secured the large edible lizard which sought shelter in its burrow at the foot of a tree. The Ainus placed two sticks in the form of a cross in front of the den of a bear, then shoved in branches to stir up the animal. The enraged bear pulled these in until the confined space forced it out toward the front of the den, where it was dispatched.

The Australian made bird lime from the bruised root of a plant and the eggs of the large red ant. To this adhesive substance the bird stuck when it alighted. This method was practiced throughout Oceania.

Various methods were used to entice the animal within range of the hunter. When the Euahlayi sighted an emu he fastened emu feathers to a long spear, climbed a tree, broke branches to place beneath him for concealment, and allowed the spear to dangle through them. The inquisitive emu, seeing the feathers, approached to investigate. When the bird was within range the native threw the spear, which seldom missed its mark. Imitation of the animal's call or of its form

is also common. The Jurci, or Niuci, of Manchuria wears a stag's head containing the antlers, a decoy whistle bringing the deer to the simulated stag. In the Woodland area of North America, Indians call the moose, the hunter sometimes using a birch-bark horn to increase the simulation. To secure buffalo, the Plains Indian placed over his head and body the hide of a wolf, crawling on all-fours until close enough to the animals to shoot them.

MECHANICAL DEVICES

Among the simpler mechanical devices are the throwing-clubs employed among the Kolis, of Guzerat, in southern India, as well as in the Southwest of the United States; in these widely separated areas they are used for the purpose of knocking over hares. Similar throwing-sticks are used in Australia and were known in ancient Egypt. A variant of the throwing-stick is the boomerang which the Australian throws into a flock of flying ducks or pigeons, the eccentric motion of the implement making it difficult for the birds to dodge it. The Eskimo throws at birds a number of stones attached by thongs which radiate through a considerable area. The bola of the Patagonians is similar. In Burma and in southern South America the pellet bow is employed.

Nets are widely used for game as well as for fish. They were used for land animals in the early Mediterranean civilizations, being commonly employed by the Hebrews. In Uganda and in Portuguese West Africa birds are taken by dropping a net over them as they feed on ground to which they have been enticed by food, a device known to Australians, who also stretch nets from tree top to tree top across a stream, taking pigeons, ducks, and other water fowl flying along the river courses. Siberian tribes use nets for taking smaller animals. The device seems not to have been employed in the New World save in the north Woodland area, where nets were used to entangle the antlers of deer.

The Winnebagos take beavers and otters in pitfalls covered with dry grass, digging these in the cut-offs which the animals travel when going from one stream or lake to another. The

pitfall, seldom used in the New World, is widely employed in the Old. It was utilized by the Hebrews, is found in India, Australia, Africa, southeastern Asia, and Siberia—an almost uninterrupted distribution. Frequently, in India, southeastern Asia, and Africa, bait was placed in the pitfall.

Traps are of various sorts. The cross-bow trap, consisting of stock, bow, and a T-shaped slide, is employed by the Ainu and by Siberian tribes, and is probably derived from Mongolian sources. The dead-fall is a much more widely distributed form of trap. It is used throughout Africa, in the woodland area of North America, and throughout Siberia. Of wide distribution also is the snare, found in Africa, Siberia, the Woodland area of North America, Polynesia. Generally it is designed for smaller animals. During March the Northern Saulteaux fenced in the "dancing ground" of prairie chickens, leaving openings at intervals in the fence of tamarack boughs. In the openings they placed slip-nooses; by this device they captured large numbers of birds which came to the grounds. The Lapps used the lasso in taking wild reindeer, the Chukchi for taking mountain-sheep. In the New World the lasso developed from the bola thrown by Indians of the Patagonian plateaus in hunting guanacos.

By the "drive" animals are taken in large numbers. The Lapps and the Samoyeds drive deer into a funnel-shaped inclosure composed of two long converging fences or rows of sticks. In parts of the North American Plains area buffalo were driven into pens built of tree trunks lashed together and braced on the outside. In some cases a hunter disguised in a buffalo skin acted as decoy and led the herd to a precipice over which the animals were driven to their death. On the plains of Kansas and Nebraska the hunters formed a circle around the herd, then, rushing in, shot the animals with arrows. The drive was extensively employed in Africa. In Uganda the natives secured antelopes by setting nets and firing the grass over a large area to the windward. As the terrified antelopes fled the fire they were speared by waiting hunters. The men who had lighted the fire followed them so as to bag any game which might venture to turn back and attempt to

break through the line of flame. The Shoolis used similarly a large net, sometimes a mile in length, setting it up in grass land which had been burned over. At intervals men lay concealed behind the net. Thousands of acres to windward were fired, the blaze driving the animals into the net, where they were killed by the men lying in wait. The Bushmen drove game into lanes along which waiting hunters were hidden, ready to spear the animals. In West Africa elephants are driven into a corral made by twining heavy branches about the trunks of trees; then, with considerable danger to the hunters, the imprisoned animals are killed.

Suggestive of the drive and of fences is the Winnebago method of piling brush across the path traveled by deer and implanting a sharp stick behind the brush. The deer jumps over a pile of brush and is impaled on the concealed sharp stake.

The Plains Cree drove buffalo into a large fenced circular space about a hundred yards in diameter; the entrance was banked up with snow, to a height sufficient to prevent retreat of the animals that had entered. For about a mile on each side of the road leading to the pound, stakes were driven into the ground at intervals of about twenty yards; these represented men and deterred the animals from attempting to break out. Fifty or sixty yards from the pound, branches of trees were placed between the stakes to screen the Indians who lay concealed behind them awaiting the approach of the buffalo.

Not infrequently the assistance of other animals is employed. In Siam, as in ancient Palestine, birds are taken in a double trap, one portion containing a captive bird which serves as decoy. The Maori hid under leaves and held in one hand a parrot whose screaming attracted other birds, many of them coming close enough to be taken. In the interior of New Zealand the parrot was tied with a string, its cries attracting into a prepared place a number of other birds of its species, which were then secured by the bird-catcher. The Samoyed obtained reindeer by using female deer as decoys. The hunter wore reindeer skin, and, bending low,

followed the decoy deer until close to the herd of wild ones. This method is widely employed in Siberia. Hatt finds the beginning of reindeer domestication in the use of decoys. Decoy ducks have been used for a very long time in the Frisian Islands and in Holland. In Persia decoy swans bring wild swans within range of the hunter. In Africa, Australia, and the Americas decoys were much used. The Old Germans, as vouched for by the old Frankish, Alamannic, and Langobardian laws, used deer, urus, and bison as decoy animals. In India the tame elephant is used in the capture of wild ones.

Sometimes the animal leads the hunter to the source of game or food. To secure honey the Australian fastens, by means of gum, a piece of feather to a honey-bee, then releases the bee, following it at top speed until he arrives at its store-house. The Bushmen follow bees to their hives, or take their cue from the "honey-bird," which leads them to the source of supply.

In other cases the animal assists man more aggressively. During the rutting season of the deer the Samoyed hunter selects a strong ungelded buck and sets out with it to look for a wild herd. When the herd is sighted, the hunter puts slings around the antlers of the buck, attaching them by means of loose bast, then sets him on the herd. The wild stag challenges his rival. During the contest the antlers of the wild stag become entangled in the slings of the tame one, who presses his antlers to the ground and holds his adversary until the hunter arrives.

In similar fashion the Ostyaks fasten straps to the antlers of the tame deer and disperse the deer near a herd of wild ones. They rush on the wild deer, entangling the antlers of the latter and holding the animals until the hunters come up. In autumn and in spring the Amur hunter sets out with a tame deer to which a rope is attached, following it to a herd of wild ones, thus being enabled to approach close enough to kill the game. Similar methods are almost universal in Siberia.

The animals most commonly employed to hunt others are the dog, lion, leopard, and hawk. The lion and leopard were

used by the Hebrews and the Babylonians, the leopard by the ancient Persians. Falconry was a popular sport in medieval Europe and in Abyssinia.

ESKIMO AND NORTH WOODLAND AREA

To obtain an idea of the various methods of securing game employed in a given area, we may examine the devices used by the Eskimos and in the adjacent Woodland area of North America.

The Central Eskimos capture gulls in a flat snow house, one block in the roof being translucent and so thin that the hunter concealed within can thrust his hand through it. On this block is placed a bait. When the bird alights to feed it is grasped and pulled through the roof into the hut.

Large numbers of birds are secured during the molting season. Partridges can be caught with the hand. Water fowl are pursued with the kayak. The water fowl dive when the boat comes near them, are frightened again when they rise, and in this way eventually are drowned. To catch one species of goose, the kango, which frequents the lakes, a circular wall of stones is raised, having a single entrance. The natives drive a flock of the birds toward the building, one man, whom the stupid birds follow, leading the way. When they have entered the inclosure the entrance is closed and they are killed. When the natives in their kayaks encounter them on the water they surround the birds and drive them to land and into the inclosure above described.

Greenland Eskimos secrete themselves among rocks along the shore and the cliffs and take birds by the thousand as they fly past. Enough are caught in spring to last through most of the ensuing winter.

In hunting seal a small instrument is inserted in the blowhole where a seal is expected, placed in such manner as to be struck by the seal when it rises, thus giving the watching hunter warning. The mother seal is lured by throwing the young seal into the water, holding it by means of a thong. In warm weather the hunter steals up to the seal by crawling and sliding through the snow, imitating the movements of the

animal, clothed in a seal skin to increase the deception. By this artifice an expert hunter kills from ten to fifteen seals in a day.

The Frobisher Bay Eskimo, hunting walrus with the harpoon, coils the line and hangs it from his neck. He hides among drifting ice, awaiting the moment for striking the game. As he throws the harpoon he slips the coil of line from off his head, fastens the end of the line to the ice by driving a spear through the loop of it, and waits until the walrus rises to the surface. When it reappears he dispatches it by means of a long lance. When the Greenland Eskimos find a walrus under an extensive floe of new ice they drown it by frightening it as soon as it comes up to blow. Among the Central Eskimos two hunters approach the walrus, one hiding behind the other, so that only one is seen by the animal. When the spear has been thrown, both men grasp the line, winding it about their arms to cause as much friction as possible, endeavoring to exhaust the animal quickly. When the line is nearly run out, the end of the spear shaft is passed through a loop in the end of the line and held firmly by digging a little hole in the ice for the end of the spear to rest in, the foot being placed upon the line and against the spear to steady it.

Whalebone snares are employed in the taking of hares, ermines, lemmings, and water fowl of various species, water fowl being secured in large numbers. The line is set along the edge of a lake, usually near nesting-places. In shallow lakes the line is placed across the water to catch diving and swimming birds; these are drawn to the shore with the line. On low islands where eggs are laid, islands frequented by innumerable water fowl, snares are set on the nests and in a short time large numbers of swans, geese, and other birds are taken.

Dogs directed to the tracks of musk-oxen follow the herd; when they overtake it they form a circle around the animals, keeping them at bay until the hunters arrive and engage the oxen at close quarters while the attention of the prey is distracted by the worries of the dogs. Rarely does an ox

break out of the circle. Polar bears are secured in similar manner, or are killed in their dens before fully roused from hibernation. Foxes are taken in a trap consisting of an ice house about six feet high, covered, save for an opening, with ice slabs and surrounded with piles of ice slabs which permit easy access to the roof. Blood is sprinkled around the opening at the top to attract the fox, and a larger bait is placed on the floor. The fox jumps in, but can not jump out. A similar trap supports over the opening a piece of whalebone, over which the fox must walk to get the bait. The whalebone bends beneath the weight of the animal, drops the fox into the trap, then straightens up ready for the next comer. Some house traps have a sliding door of ice, to the upper part of which a line is attached, passing over the roof and down into the trap, where it is fastened through an eye to a peg of ice. On this peg of ice is placed a grummet, the line being concealed from view by means of a false roof. When the animal drags at the bait the grummet slips from the peg, bringing with it the line and allowing the trap door to fall. Wolves are taken in pits covered with blocks of snow, bait being placed on the center slab, which is thin enough to break under the weight of the animal, precipitating it into the trap. Another method of taking wolves is to put into a block of snow a sharp knife smeared with deer's blood, the edge protruding. The wolf licks the snow and cuts its tongue until it bleeds to death lapping up its own blood.

An ingenious device consists of a strip of whalebone about two feet long, rolled into a coil and tied with sinew. At each end is placed a small metal wedge. The coil, wrapped in a piece of blubber or meat, is gulped down by the wolf. As the covering is digested and the sinews are dissolved the elastic strap opens and tears the stomach of the animal. This device is familiar to Siberian tribes.

The Central Eskimos capture deer while the animals are crossing lakes or rivers, take them in traps, or shoot them in the narrow passes. In the open where the hunter cannot conceal himself, the men hunt in twos, one hiding behind the other by slightly stooping. Bows or guns are carried on the shoul-

der, arranged to resemble the antlers of a deer. At a distance the men resemble their prey.

Sometimes hunters hide behind stones and lure the animal by imitatively grunting. Sometimes two men walk directly away from the deer they wish to kill, whereupon the animals follow them. As soon as the men arrive at a large stone, the leader hides behind it, while the other walks on until he has led the deer within range of his companion's arrows. In winter deer are caught in traps consisting of holes in the snow covered with slabs of the same material. Sometimes salt-water ice is placed on the trap to attract the deer.

In their migrations the deer cross the narrow parts of lakes. Here the natives lie in ambush within their kayaks. In other places the animals are driven into the water and are attacked by pursuing hunters or by "drivers" stationed on the lake. Favorite places for such a chase are narrow peninsulas. The hunters deploy into a skirmish line and slowly drive the herd to the extremity of the peninsula, whence the deer, retreat cut off, take to the water. If the shore be too straight to permit this method of hunting, they drive the deer to a hill stretching to the lake. A line of cairns is erected on the top, serving to deceive the deer, which believe them a new line of hunters approaching from the opposite side. When the deer are in the water the natives pursue them in kayaks. The boats are propelled much more swiftly than the animals can swim and they are overtaken and killed with spears. Sometimes the wounded deer turns upon his pursuer; then the hunter must quickly make his escape, or the boat will be capsized or torn to pieces by the animal's antlers. In narrow valleys having a steep face on both sides the deer are driven toward the hunters. When there is no possibility of escape on either side they are killed by men who lie in ambush. In winter they are driven out on thin ice and, when they break through, are easily captured.

The Hudson Bay Eskimos and the Nenenot Indians drive the deer through the water so as to make them come out near the camp where they desire to have them—with almost the same assurance that a shepherd drives his flock. When

the deer are close to land the hunter takes his spear and quietly stabs the animal in a vital spot, endeavoring to wound the beast in such a way that it will have only enough strength to enable it to attain the shallow water on shore and not wander off. "Among the hundreds of times I have had the opportunity to witness this," writes Turner, "I never knew a deer wounded with the spear to turn back to swim in the direction from which it came. They appear to dread the water and strive most frantically to regain the land, where, if mortally wounded, they stand." [1]

The Nenenot Indians know the habits of the animals so well that when they go to a particular locality almost invariably they find the game they seek. In winter, men and women, thanks to snowshoes, are able to drive the deer into snowbanks and there spear them. The snow falling in winter collects in gullies and ravines, though it is only in seasons when there is abundance of snow that it serves the purpose of the hunters. They drive the deer through narrow passes, where they are ambushed by waiting hunters. Panic seizes the animals when they discover themselves confronted by an Indian at every turn. Until the deer recover from their paralysis and again attempt to escape, they stand quietly and are slaughtered, or walk unconcernedly about, seemingly deprived of power to run. The hunters hurriedly close in upon them; in a few minutes the herd is killed or has dispersed in all directions.

The mink and marten the Nenenot take in figure-4 traps—trigger dead-falls. The lynx is taken in a snare. In the Ungava district the Indians decoy flocks of geese by imitating their notes so closely that the birds do not discover the deception until close to the source of the calls.

The Nenenot set snares for deer. They also drive them down narrow defiles along which snares have been placed. From the trees between which the deer pass they suspend nets and in these their antlers become entangled. Snares are set on the ground in such a way that when the foot of the animal is placed within the coil a pull upon it tightens the loop and

[1] Lucien M. Turner, *Ethnology of the Ungava District, Hudson Bay Territory.* 11 ABE, 1889-90.

secures the game. The beaver they take by closing the apertures which admit to its house and making an opening in the top of its hut. The animal is caught by the hind legs or by the tail and is dragged out. The native must jerk it out and kill it immediately with a blow on the head; a moment's delay is enlivened with a bite as dangerous as a cut from powerful and sharp shears. When they sight a flock of brant they raise such a clamor that the frightened and distracted birds come to the ground and are killed. The loon is called by imitating its cry with remarkable fidelity.

The Montagnais take beaver in a manner similar to that employed by the Nenenot, by stopping up the "roads" to their houses and lifting them out from the top of the hut. The Iroquois employed the dead-fall for smaller land animals, and captured pigeons by placing a net sack over a broad path through the woods, both ends of the net being fastened to the overhead limbs of trees. In one night they sometimes took as many as 700 to 800 pigeons by this method. Deer, as mentioned, they captured by means of overhead nets so arranged as to entangle the antlers of the animals, or by foot snares placed along the paths. At other times they drove the deer into a V-shaped trap built of brush. A large party of hunters was formed for this purpose and sometimes as many as a hundred deer were taken at one time.

CULTURE SIGNIFICANCE OF HUNTING

The interest in hunting and in fishing is considerable, surviving in our present-day civilization. At Port Lincoln, Australia, great excitement prevails among the natives when they are successful in hunting or fishing, each one exclaiming on these occasions: "My meat! My meat!" patting his stomach the while vigorously. Many eulogiums are bestowed on him to whose skill they owe the feast in prospect. In many of the Woodland tribes of North America a man must show himself a good hunter before he can secure a wife. Among the Andamanese the man who stands highest in the esteem of his tribesmen is the skillful hunter who generously distributes to others the food he obtains.

Numerous sign manuals have been developed by hunters. In South Australia the natives have as many manual signs as there are species of animals. Pointing with the forefinger, the others closed, and making a motion in imitation of the hopping of a kangaroo, indicates that animal; three fingers extended, the middle one dropped a little below the other two, indicates the emu; four fingers shut, the thumb extended, indicates the opossum; when the whole hand is extended, horizontally on edge, fish are indicated. The Dieris have a sign manual for each species of animal.[1]

Hunting has numerous associations of a magical nature. Among the Stseelis, of British Columbia, a man is a successful hunter of the animal represented by his *sulia,* or manitou. A bear sometimes speaks to a native, promising to protect him and give him power to take bears easily and without danger to himself. Individuals in the Skaulit tribe who are under the protection of otter and mink are very successful in trapping these animals; the Sturgeon people, when they wish sturgeon, are able to secure them. In Greenland, when there is a scarcity of seals, the *angakok* brings them by an appeal to the *siudleratuin,* as deceased *angakut* are called. Or he goes down to Nervivik, the woman under the sea, and by combing and braiding her tangled hair secures from her the release of the seals. The parasites fastened round the head of Arnarquagssaq are the charm which restrains the seals; from this troublesome pest she first must be freed.

In the district of Angmagsalik they say the *angakok* combs seals and narwhales out of the hair of the huge woman, while in Baffin Land the explanation is that he secures their release by depriving their mistress of a charm which is in her possession.

Before a Winnebago goes on a bear hunt he performs a magical ceremony designed to attract the game and rubs "medicine" into his arrow. In the ceremony designed to attract the bear an offering is made of corn or dried fruit, tobacco, and red feathers. Throughout the Plains area magic assists in the taking of game.

[1] See sign manuals of Australians in Chapter on *Language,* page 428.

The Yorubas say that Oshosi, the patron of hunters, resides in the forests and drives the game into the snares and pitfalls of his faithful followers, whom he protects from beasts of prey. They represent him as a man armed with a bow; to him they make offerings of the fruits of the chase, mainly antelope.

The most marked specialization in hunting is along the lines of sex. In Australia, for example, it is the women who, by diving, obtain the large fresh-water lobsters or the shellfish, who dig frogs out of the ground, or search for the witchetty grub. The more exciting part of the chase, the capture of the larger animals, falls to the men. The men have the more dramatic if more arduous life, the women have the humdrum lot of easier but less exciting tasks.

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CHAPTER X

DOMESTICATION OF ANIMALS

DOMESTICATION of animals affords man a dependable supply of food in place of the precarious one of the hunting stage, or gives him the assistance of animals in various enterprises.

As early as the Neolithic period in Europe man had domesticated the cow, pig, sheep, goat, and dog, the bones of these domesticated animals being found in large numbers.

THE HORSE

Probably the horse was first domesticated in or near Mesopotamia, whence it was taken to Egypt, Asia Minor, and Greece. It was used by the Britains when their island was invaded by the Romans.

The introduction of the horse into America by the Spaniards in the sixteenth century and the spread of the animal to the north must have changed considerably the life of Plains tribes who adopted it, contributing to nomadic and warlike disposition. In South America, even in the Pampas region, it had less influence upon aboriginal culture. Elsewhere, if we except the nomads and semi-nomads of Central Asia and contiguous territory, the horse has played no part in the culture of primitive peoples.

CATTLE AND BUFFALO

Cattle and buffalo have played a more important part in primitive industrial life. In South Africa herding was common. The Kafirs bend the horns of young cattle into various shapes, laying them side by side horizontally, or elevating them to the perpendicular. A breed peculiar to this region consists of short-legged, short-necked cattle, generally black and white, with horns from four to eight inches in length, the

extremities of nearly the same thickness as the roots, curved inward and directed toward the ears. The horns are not attached to the skull, but merely to the hide, and can be turned in any direction.

Kafir cattle are controlled by word of mouth and by signals given by whistling; one note is whistled if the herder desires the animal to come and stand for milking; another if he wishes it to avoid certain pasture; another when he wants the cattle to leave the pasture where they are and follow him to a new one—and so on.

For subsistence, the Todas are dependent almost entirely upon their buffalo. They do not eat the flesh, but the milk furnishes an important food product.

THE DOG

The dog was the most widely distributed of the animals domesticated by primitive peoples, and in Neolithic Europe it was probably the first to be domesticated, at least in the North. The dyeing of dogs and cats, practiced in early Ireland, suggests that these animals were introduced from the East (in India a blue dog is an especial favorite). The domesticated dog is found in Australia and Tasmania, among primitive tribes in India, and in most parts of the New World. In the northern part of North America and in the Plains area dogs were used for purposes of transportation.

The dogs of the Eskimos breed with the wolf, and all varieties of dogs in the New World have wolf ancestry, the teeth showing closest affiliations with those of the wolf. In Mexico and in the West Indies a hairless dog was kept, principally for food. The dog was eaten also in the Plains area, though usually in connection with a ceremony, and in the Philippines. Dog-driving is practiced throughout Siberia. Among the so-called Paleo-Asiatic peoples, the Ainu, Gilyak, Kamchadel, Yenisei-Ostyak, Yukagir, Kuryak, and Chukchi, the dog was the only domesticated animal when this region was first visited by Europeans, the dog-sleigh the only means of land transportation. The most common utilization of the dog was for hunting. Some Alaskan tribes kept a breed of

small dogs for hunting. For hunting deer when the snow was thick and soft the Ainu utilized dogs of the species used by the Japanese, capturing many deer by the aid of these animals. Siberian tribes likewise use dogs to assist in taking game. Some are trained to follow the scent without barking, others to bark at the game. In the summer, when the snow is gone, silent dog hunting is used, for if the game hears the bark of the dog it makes off and the hunter cannot come up with it. In the deep snows of the winter the case is otherwise: when the hard-pressed deer turns upon the dogs to fight them, the hunter comes up unobserved and dispatches it with bow or gun. The semi-domesticated Australian dingo is trained to assist in the trailing and taking of game. In South Australia the hunter is attended by several dogs. Though the dingo devours all sorts of carrion, it will not disturb the bodies of human beings. Every Dieri camp had some six to twenty dingoes. The natives took as good care of them as if they were human beings. "If a white man wants to offend a native, let him beat his dog." Dogs assist in finding snakes, rats, and other small animals, as well as in hunting large game, especially kangaroos.

In the training of dogs many magical means are employed. If a Greenland Eskimo wishes to have strong and fleet dogs, he hangs round the neck of his pup a small stone which has fallen from a "bird rock," the supposition being that since the stone had been both fleet and strong in its flight corresponding qualities will be conferred on the dog. If a little auk can be caught while fighting another, part of it is sewn in a piece of skin which is fastened round the dog's neck; the dog will then be a good fighter. Other magical emblems insure that the dog will bark freely and so frighten away bad spirits which infest the camp.

Pigs, sheep, and goats have played a subordinate part in primitive life, and no further attention will be given them at this time. In the Andean region of the New World the llama was used to transport burdens of light weight through mountainous sections. It was not domesticated elsewhere. No primitive peoples have domesticated the elephant or the camel.

The natives of Sumatra are said to have used a monkey, tied to the end of a long string, to climb trees and throw down cocoanuts. One man made his living by going from village to village and employing his monkey's cleverness to collect the cocoanuts in the plantations. But this may be a backwash of European barrel-organ culture.

REINDEER

A much-used domesticated animal of comparatively recent introduction is the reindeer. From negative evidence there is reason to believe that it was not domesticated in Neolithic times. At least fifteen hundred years ago, however, it was a domesticated animal. It is utilized from Lapland to Kamchatka, throughout the reindeer region of the North, and in recent years has been introduced by the United States government into Alaska, where the attempt is made to habituate the Eskimos to them, both as animals for transportation purposes and as herds for food. Dog transportation, known throughout Siberia and northern North America, probably preceded reindeer transportation, and gave to the latter many of its characteristic traits.

The Samoyeds possibly introduced the domestication of the reindeer in Siberia, whence the trait spread eastward to the Tungusians, the Yakuts, Chukchis, and Koryaks, going westward to the Ugrian tribes of the Ural and to the Lapps. Among many of these tribes the reindeer supplies the people with meat, skins, and sinews, besides serving as the most important draft animal in these snow-covered regions. It has a religious significance and on sacrificial holidays is slaughtered as an offering. When the breeding of the reindeer was still a thriving enterprise among the Irtysh-Ostyak, the southern division of the Ostyak, the reindeer alone was chosen for the sacrifice, as is still customary in the North among the Ostyak and the Samoyed.

Hatt finds the origin of reindeer domestication in the decoy method. Use was made also of salt, of which deer are fond, thus establishing a symbiosis between those animals and man.

He agrees with Laufer in supposing reindeer transportation a substitution for earlier dog transportation.

FOWLS AND BIRDS

The hen, or barnyard fowl, probably was first domesticated in southeastern Asia. It is common throughout the region around the Indian Ocean, and was raised in large numbers by the natives of Africa, particularly in the southern part of the continent. Among the Kafirs, they sleep, as a rule, in the hut, at the back of which a special perch sometimes is arranged for them. Frequently earthenware pots are preserved when broken, the larger portions being set apart for the hens to roost in. If there are wildcats about, the natives plant trees and build in the branches roosting-places for the hens.

Pigeons, also, were kept in many parts of Africa. North of the Zambesi, huts raised above the ground on long poles were built for them.

Turkeys were kept in captivity by the Zuñis and were herded in flocks. Geese possibly were domesticated in the more highly developed culture of the Aztecs. The Beothucks of Newfoundland used a goose, fastened to a string, as a decoy to bring geese within range of the ambush; but no domestication proper was employed in that region. The use of animals as decoys was common in many parts of the world.

The Ainu respected owls for their wisdom and held them in a sort of reverence, frequently keeping tame ones. Eagles and bears also were kept in captivity in the settlements.

The New Zealanders taught the parrot to speak, to utter words which would bewitch people, and to repeat incantations for various kinds of food. One writer records a long war which came as a result of employing the parrot in this manner. In the Southwest of the United States the imported parakeet was kept in captivity, being highly valued for the sake of its feathers.

The pigeon, or dove, has been kept from ancient times, and has doubtless been known to many African tribes for a long while, but has not been domesticated in other areas of the primitive world.

Many tribes utilize the honey of the bee, though only in the highly developed cultures of the New World was the bee hived. The method by which the Australian finds a hive of bees, and that employed by the Bushmen, have been described in the chapter on "Hunting." [1] Among the Thonga, likewise, a little sparrow of grayish color, called the honey-bird, is believed to lead the traveler to a tree where bees have gathered honey. After eating to his heart's content, the wayfarer gives the bird the wax; should he burn the wax he would not be guided to a second tree.

In the above instances man has not taught the animal to follow him, but he follows it, content to profit as best he may. Among many tribes of North America the movements of certain animals were observed and used as the basis of some profitable enterprise. This was commonly true with regard to the crow. The Omahas, for example, realized that the crow followed the buffalo herds—"He is a buffalo-hunter. He watches to find his chance for carrion." Accordingly, when runners went out to search for herds, they first scanned the sky to catch sight of the crow or other birds of prey. If a herd was found by following the crow, credit was given to that bird for the information. The Micmacs knew when a crow had sighted other game, believing that the calls of the creature designedly informed them of the nature of the find. The starling, to which the Mabinogion refers as a messenger bird "reared in a domestic manner," probably was chosen for the "messages" which it spontaneously gave. According to Mandeville, pigeons were used in Judea and other countries "beyond" to carry letters from castle to castle.

Among the ancient Greeks the marten was domesticated, kept in the house to rid the place of mice. Strabo says the people of Spain were so infested with rabbits that they imported ferrets from Africa. These were muzzled and turned into the burrows. They drove out the rabbits, which were killed by those standing near.

[1] P. 121.

ORIGIN OF DOMESTICATION

The conditions which led to the domestication of animals doubtless differed with various peoples and with the respective animals. The habit of following an animal in order to profit from its presence suggests one of the motives for domestication. Thus the hunting in Palestine and in India with lion and leopard, with the leopard in Abyssinia, with the lion in Assyria, doubtless had its origin in the knowledge that these animals pursued game and that to follow the lion or the leopard was to follow the game which the animals pursued. Haeckel said it was more probable that the Australian followed the dingo into that island than that the dingo followed the Australian, and the observation is justified. By following the fox, the wolf, or the jackal, man obtained a portion of the prey and left a portion for the carnivore. This developed ultimately into a kind of partnership wherein both profited from the domestication. It has been suggested by Rätzel that domestication grew out of the custom of taking the young of animals home as pets. This view is adopted also by Mason, who says: "The first domestication is simply adoption of helpless infancy. The young wolf, or kid, or lamb, or calf is brought to the home of the hunter." In such domestication as the above-mentioned writers point out, the larger share fell to the women. They cared for the young, often—as we find in southeast Asia, Polynesia, Australia, among the Ainu—providing literally the milk of human kindness necessary for their maintenance. The men were occupied with hunting, and other emotions than desire to care for the young of animals were awakened in them. In Hawaii, the men took the fish at sea, but the women built and maintained the fish ponds in which some of the captured fish were kept. Yet too much importance must not be attached to this care on the part of the women, so far as consciously initiating the enterprise is concerned, for home work of all kinds usually falls to their lot, particularly everything having to do with the preparation of raw food products. G. Stanley Hall's assurance that

woman has domesticated nearly all the animals cannot, therefore, be unreservedly taken, if taken at all.

Jevons believes totemism gave rise to the domestication of animals. Those animals which were revered by man and were protected by him gradually learned that they were safe when close to him, and so, in course of time, became habituated to him. Frazer believes that magical ceremonies, such as those which flourished in Australia, led to the domestication of animals; but, if so, the instance of the *Intichiuma* ceremonies, which he adduces, is not happily chosen. August Comte advanced the view that in the fetishistic age, through which he believed man had passed, man felt himself at one with nature and little removed from the animals. Being like them in intelligence and in sympathy, he easily perceived his relationship to them. Then domestication was achieved, force and dominance being a characteristic only of man's later dealings with the animals.

In 1865 Francis Galton published his famous essay on the domestication of animals. He pointed out that many savages keep pet animals or have sacred ones. Kings of ancient kingdoms imported captive animals in large numbers for purposes of show. Galton assumed that every animal of any pretensions had been tamed again and again, and so had been given an opportunity of accepting domestication. Rarely, however, have these opportunities led to any result; for no animal is fitted for domestication unless it is ready to fulfill certain conditions.

The qualities which the animal must possess in order to be fitted for domestication are summed up by Galton as follows:

"*Hardiness*—ability to shift for itself and to thrive, though neglected; if it demands too much care it is not worth its keep.

"*Fondness for man*—a tendency to cling to man in spite of occasional hard usage and frequent neglect.

"*Desire for comfort* is a motive which strongly attaches some animals to human habitations, even though they are unwelcome. This, indeed, is a very weighty motive, for 'the life of all beasts in their wild state is an exceedingly anxious one.'—*Usefulness to man*—There is the very obvious condi-

tion that he should be useful to man; otherwise, in growing to maturity and losing the pleasing youthful ways which had first attracted his captors and caused them to make a pet of him, he would be repelled. The utility of the animals as a store of future food is undoubtedly the most durable reason for maintaining them; but I think it was probably not so early a motive as the chief's pleasure in possessing them.—*Breeding freely*—Domestic animals must breed freely under confinement. This necessity limits very narrowly the number of species which might otherwise have been domesticated. *Easy to tend.*" [1]

Darwin speaks with approval of Galton's criteria, as does also Laufer. The latter, in discussing reindeer domestication, suggests another element which has entered into domestication, at least in the case of the reindeer, an "esthetic pleasure," which man and the animals are supposed to take in the presence of each other. In reply to his own question, "What forces bind the animal (the reindeer) to man?" he says: "If it receives from him neither food nor shelter, by what factors is it induced to maintain such a seemingly unprofitable association? Indeed, the reindeer's position is singular. Examining other domestic breeds, we plainly recognize the foundation of their social contract with man, which is based on an unwritten law of reciprocity, that on both sides has developed into the quality of faithfulness. Dog, cat, and swine have reserved to themselves a certain degree of independence in the choice of their diet, and if forsaken by man, or even while under his care, may hunt for a meal on their own initiative; nevertheless they will always appreciate more what is offered them by man. Reindeer are fond of salt and sugar, and a bit of these articles may accelerate their run; but they are so rarely given to them that this could hardly be thought of as an inducement for them to keep up companionship with man. It may be, then, that it believes in man as a superior being, that it trusts in his power and strength, and looks up to him as his guardian from perils threatening from wild animals, chiefly its arch enemy, the wolf. But even this argument, weighty as it may be, does not seem to me sufficient

[1] Sir Francis Galton, *Inquiries Into the Human Faculty.* London, 1890.

to explain the whole scale of the reindeer's relation to man. It seems to me that psychic qualities both in the animal and in man must be made responsible for the final result. There is man's esthetic pleasure in animals, and the entire deer family is attractive to every human soul. This sympathy is doubtless reciprocated by the reindeer. Above all, there is the social instinct developed both in deer and in man, and in the loneliness of the arctic regions these social bonds are doubtless intensified." [1]

IMPORTANCE OF DOMESTICATION

The importance of domestication can scarcely be overestimated. It has been alleged that the absence of tamable animals in the New World and their presence in the Old is one of the principal factors responsible for the unequal development of culture in the two hemispheres. But the area in which domesticated animals were mostly employed is not, in the New World, the area of greatest advance. Moreover, the employment of the llama shows that the animal was domesticable, and there is no inherent impossibility in taming the buffalo or the caribou, both of which animals by nature are as tractable, probably, as the wild reindeer, the buffalo, or the wild cattle of the Old World, all of which species were domesticated. But the men of the New World had not had as long a time in which to work out the problems and processes of domestication as had been granted those of the Old World, and this may account for the different stages of domestication in the two hemispheres.

The economic importance of domestication, of keeping flocks and herds, of having horses, oxen, or buffalo at one's beck and call to do one's work, is obvious. As to the psychic influences resulting from such association, Laufer suggests that the reindeer-breeders of northern Asia have developed higher psychic qualities than have the Paleo-Asiatic dog-breeders because there is mutual affection between man and

[1] Berthold Laufer, "Reindeer Domestication." *Memoirs of the American Anth. Ass.*, 1917.

reindeer, there being no such relation between men and dogs in the region of dog transportation. Laufer believes the reindeer-breeding Tungusians more alert, open-minded, straightforward, and psychically more developed than the dog-using peoples about them—a difference which he attributes to association with the reindeer.

Our societies for the prevention of cruelty to animals testify to the fact that we resent wanton cruelty inflicted upon domesticated beasts—the efforts of such societies being almost always directed primarily towards domesticated animals. Only those peoples who keep domesticated animals have come to share in this feeling to any considerable extent.

The new relation brought about by domestication is essentially a social one, whether one of companionship or one of master and servant, and new influences come into the life of the people in question, and into the life of the domesticated animals.

Nor should we forget that in every case of domestication, "the animal deserves as much credit as man; an animal unqualified for the status, and without sympathetic instinct for man, cannot be domesticated." [1]

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[1] Sir Francis Galton. *op. cit.*

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CHAPTER XI

AGRICULTURE

"When men learned to cultivate the earth. . . ."—ANATOLE FRANCE.

"Higher culture begins with agriculture, which ties the group to one locality."—E. WASHBURN HOPKINS.

"Agriculture changed the face of the earth and of human relations more completely than did steam and electricity."—ROBERT BRIFFAULT.

THE beginnings of agriculture are obscured in the prehistoric past. Some of the paintings in the French caves of the Late Paleolithic age have been interpreted as representing ears of grain, probably barley, but there is no adequate evidence of the practice of agriculture prior to the Neolithic period.

In the Bronze age, particularly in the culture of the early Swiss lake dwellings, agriculture was well under way. Here were found barley and three species of wheat, one of them identical with the wheat of early Egypt, whence, probably, it was derived.

The existence of agriculture in Scandinavia during the Late Bronze age is attested by rock-sculptures representing plows drawn by cattle. Wheat and millet, in the form of straw, ears of grain, and chaff, have been found in the Bronze-age deposits of Loaland, an island still celebrated for its fine crops. Thus in the north of Europe, as well as in the south, agriculture was a pursuit in prehistoric days, a trait which the north borrowed from its southern neighbors who had previously given it the metals.

From the earliest times of which we have record the valleys of the Tigris-Euphrates and Nile have been agricultural. The rich alluvial deposits from the streams furnished a soil easily prepared for the reception of the grain. The first sowing of the seeds may have been done by nature rather than by the hand of man.

Before the plow came into use in Egypt the grain was scattered over the surface of the unprepared ground and trampled in by animals driven over it; a practice of which Swift's Gulliver was unaware when he ironically suggested that the grain be first planted and then the soil prepared by turning in swine to dig it up and trample in the grain.

Agriculture probably began in Egypt or in Mesopotamia about 10,000 B.C. and spread from there to the adjacent Mediterranean region as well as eastward along the Indian Ocean to India and remoter Asia. It reached Crete at an early date, for that island was then in close communication with Egypt, if inferences may be made from later contacts. Agriculture existed in Italy by 8,000 or 9,000 B.C., whence by way of Switzerland it reached Western Europe by about 6,000 B.C., although it did not find its way to Iceland until about 1000 A.D. Agriculture was practiced in India before 9,000 B.C. and in China shortly thereafter, if we may accept the most careful estimate of its beginnings in those regions. From China agriculture found its way into Japan, doubtless in a comparatively brief time. It was probably not practiced in Oceania before 1000 B.C., and as the Polynesian islands were not settled before about 500 A.D. agriculture there is still more recent. It is possible, however, that the rice culture of eastern Asia arose independently of the wheat agriculture of the Mediterranean area, and that the tubers of Oceania represent another independent origin.

AFRICA

Agriculture is practiced in many parts of Africa. It is one of the most important economic pursuits of the Yorubas, ranking with blacksmithing and cloth work. That considerable attention is paid to agricultural products is indicated by the proverb, "A man of the town knows nothing about farming, or the seasons for planting, yet the yams he buys must always be large"; as also by this proverb, "A thing thrown forward will surely be overtaken, and a thing put into the ground will be there to be dug up; but if nothing has been thrown forward, what shall be overtaken? and if nothing has

been buried, what shall be dug up?" In January and February yams are planted in large hills, maturing in August or September. The first crop of maize is planted between the middle of February and the first of April, ripening in July or in August. Two crops of cotton are raised.

In South Africa, prior to tilling the land, the natives burn off the grass. When the rains are over and the ground sufficiently dry, the plowing is started. Plowed lands lie unused for a year, so that the roots can rot and be absorbed. The ground is then replowed, the large clods broken, the grain sowed.

EASTERN ASIA

China was the center of dispersion of one of the principal cereals, rice, as the Mediterranean area and western Europe was the center of dispersion of wheat, barley, oats, and millet. The region of the eastern Mediterranean probably was the area of origin of wheat, for only in the area east of the Mediterranean, on Mount Hermon, has wheat been found growing wild.

Many of the Asiatic peoples who have adopted agriculture have done so reluctantly. The Turcoman recognizes a division into husbandmen and herdsmen. The poor man tills the soil, the rich man is the cattle-raiser. When the cattle find only reeds and thorny shrubs, as on the Tarim, agriculture, of which the germs are present, steps in and overcomes the difficulty. The people of the Lob-Nor, who cannot obtain a living by sheep-raising, cultivate their bit of wheat near Charkhalyk, more than a day's journey from the lake. From the Chinese the Kirghis of Kuldja have learned the growing of cotton. In East Turkestan the people, preponderantly Turkish, are well versed in agriculture. The Mongols grew millet in the earliest times of which there is record.

SOUTHEASTERN ASIA AND OCEANIA

In Java, Sumatra, and parts of the Philippines agriculture is practiced with the aid of the plow. The chief crop of the Indonesian is rice, an importation from China.

Most of the Papuasians are agriculturists as well as fishermen. In the larger islands there usually is a sharp distinction between the coast people, who are mainly fishers, and the inlanders, who are agriculturists. The latter are the more primitive, in many cases being practically serfs to the former. Both sexes do agricultural work. Irrigation is practiced, and in places aqueducts are constructed, as notably in New Caledonia and in New Guinea.

In various parts of Polynesia the yam is cultivated in the interior hills and occasionally in the valleys. Small terraces are formed, one above the other, covered with a mixture of rich earth and decayed trees. The roots intended for planting are kept in baskets till they begin to sprout.

The Tanese, in the New Hebrides, bestow much labor on their plantations and are well rewarded. They build mounds, some being seven feet high and sixty feet in circumference, heaps of loose earth thrown up by hand. In the center they plant one of the largest yams entire, putting smaller ones around the sides.

Previous to contact with Europeans the Maoris were not agriculturists. After obtaining the potato in the eighteenth century they developed its cultivation to a remarkable degree, clearing the land of trees and brushwood, which were burned after being felled and were then allowed to dry. Potatoes were planted in small holes made with a sharp-pointed wooden implement; the weeds were carefully hoed out and left for the sun to scotch. This was repeated after two years. The fourth year the ground was dug up with the spade and the potatoes planted in small mounds of earth, three or four eyes in each mound. This was repeated during the next three years, the crop of the seventh year being left in the ground and gathered the eighth year.

Since the South Sea Islanders were unacquainted with esculents which are propagated by seed, H. Ling Roth believes agriculture had independent origins in the New World, Eurasia, Africa and Polynesia.

THE AMERICAS

The eastern part of the United States was an area of maize culture. The area of intensive agriculture was the region from the Colorado River, through the Isthmus, to the lower part of Chile, maize being the principal food in this area. California and Lower California constitute an area of wild seeds, the region drained by the Amazon being the area in which manioc was raised. In the eastern Woodland region maize, squash and beans were raised, wild rice when available was utilized, and maple sugar was manufactured. Agriculture was not practiced in the Plains area. In the Pueblo region of the southwestern part of the United States and in the north of Mexico, maize, beans, melons, squash and sunflower seeds were raised as food; in historical times, onions and chili peppers were grown. In some localities mesquite, saquaro, tobacco, and cotton were cultivated.

The Aztecs raised maize, peppers, beans, and cacao. In Central America the alligator pear, cashew nut, tomato, and pineapple were raised.

The Chibchas, of Colombia, raised maize, potatoes, sweet potatoes, manioc, beans, tobacco, cacao, cotton and squash. In Ecuador potatoes, cacao, peppers, maize, and on the higher plateaus quinoa, instead of potatoes, were raised. The Incas raised manioc, ground nuts, beans, gourds, tomatoes, guava, and fiber plants. In the Amazon basin tobacco, potatoes, and cotton, as well as maté, or Paraguay tea, were produced, also manioc, coca, maize, yams, pumpkins, peppers, and sugar cane. The most important plants cultivated by the natives in the Americas prior to the coming of Europeans are the following (after Wissler):

PLANTS NATIVE TO THE NEW WORLD	AREA OF CULTIVATION
Agave, or aloe	Mexico to Chile
Alligator pear	Central America and West Indies
Arrowroot	Tropical America
Bean (kidney)	Throughout the maize area
Bean (lima)	Brazil and Peru

Coca, or cocaine	Peru and Bolivia
Cashew nut	Tropical America
Capsicum, or chili pepper	Tropical America
Cacao	Tropical America
Cotton	Tropical America
Guava	Tropical America
Gourd	Throughout the maize area
Jerusalem artichoke	Mississippi Valley
Maize	The Mississippi to the Atlantic, Great Lakes to Florida; mouth of the Colorado River to southern Chile on the west coast, and to Argentina on the east coast
Manioc	Central America to Argentina, though not found along the western coast of South America
Maté, or Paraguay tea	Paraguay and Western Brazil
Potato	Chile and Peru
Pumpkin	Temperate North America
Prickly pear, or Indian fig	Mexico
Pineapple	Mexico and Central America
Peanut	Peru and Brazil
Papaw	West Indies and Central America
Quinine	Bolivia and Peru
Sweet potato	Tropical America
Star apple	West Indies and Panama
Squash	Tropical America
Tobacco	Practically all of North, Central, and South America (excepting the southern part of Central America, a strip along the western part of South America, and the extremes of cold where the plant will not grow)
Tomato	Peru

Until 1921 the view prevailed that maize had been developed from a wild grass of the Maya habitat.[1] In that year Luther Burbank developed from the teosinte plant, a wild grass growing only in southern Florida, a species of maize supposed to represent something like the first types developed by the Indians. It took Burbank only eighteen years, working with eighteen generations of the teosinte, to develop the maize that undoubtedly required many centuries of aboriginal culture

[1] A view which many still hold.

when the selection of seed was less intelligent. "Where teosinte had formerly relied upon the frosts to loosen up the ground for the seed, it found in the Indian a friend who crudely but effectively scratched the soil and doubled the chance for its baby plant to grow. Where it had been choked by plant enemies, and starved for air and sunlight by weeds, it found in the Indian a friend who cut down and kept off its competitors. Where it had been destroyed by animals before its maturity, it found the selfish protection of the savages as grateful as if it had been inspired by altruism.

"Planted in patches, instead of struggling here and there as best it could before, the teosinte grass found its multiplication problem made easier through the multitude of pollen grains now floating through the air. And so, by slow degrees, it responded to its new environment by bearing more and bigger seed. As the seed kernels increased in numbers and size, the cob that bore them grew in length. From two, the rows of kernels increased to four, to six, to eight, to fourteen. Here, again, the selfish motives of the savages served to help the plant to its adaptation—for only the largest ears and those with the best kernels were saved for seed. So, under cultivation, the wild grass almost disappeared, and in its place there came, through adaptation, the transformed Indian corn."

IRRIGATION

Irrigation was practiced only in districts in which agriculture had progressed considerably. There is evidence of its existence in prehistoric times in the region of the Southwest of the United States. Works of former irrigation abound in the Pueblo region, both in the valleys and on the mountainsides, especially along the drainage of the Gila and the Salado, in southern Arizona. The arable tract of the Salado comprises about 450,000 acres, the earlier inhabitants in this area controlling about 250,000 irrigated acres.

In Mexico the art of irrigation reached a higher perfection, and was still further advanced in Peru, where tunnels were put through the mountains, or channels dug around their sides.

In the district between the Central and the Western Cordilleras, to the northward and the westward of Cuzco, such channels were extensively constructed to irrigate not only the valleys, but also the llama pastures on the mountain-sides.

Canals, irrigation, and the regulation of the waters, are often referred to in ancient Chinese literature. The official in charge of irrigation occupies an exalted position. The archaic Chinese word for "government" is a compound of two ideograms, one meaning "satisfaction," the other representing water or a river. There is mention of rice, wheat, and millet—indications of the importance of agriculture at that early date.

In the Mediterranean culture irrigation reached its highest development in the areas where it probably originated—the valleys of the Tigris-Euphrates and of the Nile. The Arabs introduced it into Europe, thus linking ancient with modern irrigation.

Jenks gives the following account of irrigation among the Bontoc Igorots, a people living in the interior of the northern part of the island of Luzon, Philippines, who show, no doubt, the influence of Chinese culture. "The Igorots employ three methods of irrigation: One, the simplest and most natural, is to build sementeras (irrigating canals) along a small stream which is turned into the upper sementera and passes from one to another, falling from terrace to terrace until all water is absorbed, evaporated, or all available or desired land is irrigated. Usually such streams are diverted from their courses, and they are often carried long distances out of their natural way. The second method is to divert a part of a river by means of a stone dam. The third method is still more artificial than the preceding—the water is lifted by direct human power from below the sementera and poured over the surface.

"The first method is the most common, since the mountains in Igorot land are full of small, usually perpetual, streams. There are practically no streams within reach of suitable pueblo sites which are not exhausted by the Igorot agriculturist. Everywhere small streams are carefully guarded and turned wherever there is a square yard of earth that may be made

into a rice sementera. Small streams in some cases have been wound for miles around the sides of a mountain, passing deep gulleys and rivers in wooden troughs or tubes.

"Much land along the river valleys is irrigated by means of dams, called by the Igorots *lung-ud*. During the season of 1903 there was one dam across the entire river at Bontoc, throwing all the water which did not leak through the stones into a large canal on the Bontoc side of the valley. Half a mile above this was another dam diverting one-half the stream to the same valley, only onto higher ground. Immediately below the main dam were two long piles of stones jutting into the shallow stream from the Bontoc side, and each gathering sufficient water for a few sementeras." [1]

AGRICULTURAL IMPLEMENTS

The simplest agricultural implements are the digging-stick and the hoe. Later came the plow, an improved hoe.

The early forms of plow consist of a branch or limb with a prong attached, the one constituting the plowshare, the other the beam. This form was used in the ancient civilizations, both in the Near and in the Far East. From China, Russia, possibly from Persia also, the plow was introduced into adjacent regions. No improvement was made in the Roman plow until the Dutch in the latter part of the eighteenth century added the forward cutting shear and modified the shape of the old straight plowshare.

PREPARATION AND FERTILIZATION OF THE SOIL

Few peoples cleared the land for agricultural purposes, for the most part using areas already suitable for cultivation. Parts of the New World furnish the most notable exceptions. The Iroquois of the Great Lakes region cut the bark around the trees to kill them, and cleared the land by means of fire.

In British Guiana much attention was paid to the clearing of the land, the same patch seldom being planted during two successive years, reminding us of the fallow land of medieval Europe. New land, having undergone the ordeal of purifica-

[1] Albert E. Jenks, *The Bontoc Igorot.* Manila, 1905.

tion by fire, is less encumbered with the weeds which spring up rankly in a short time in that tropical country. Toward autumn the men, selecting suitable spots for fields, clear the undergrowth with the cutlass, fell the trees and junk them. In about three weeks, if the weather is dry, the torch is applied and everything is burned except the thick trunks which survive the flames. These are left lying where they fall. Women do the planting, keep the ground clear of weeds, and in due time reap the crops.

The Incas used guanaco and other animal manures as fertilizer, but nowhere else in savagery was animal manure used. The Incas, however, represent a much higher civilization than most of the cultures included in "savagery."

The Wakandas of British Central Africa carefully return all weeds, ashes, and village refuse to the soil, while the grass and weeds growing in the fallow land are cut down and burned in heaps or laid on the surface of the soil in long rows. On either side of these layers of cut herbage are dug trenches or furrows; the soil taken out of them is thrown on top of the weeds. The decayed material underneath enriches the soil of the raised beds.

In New Zealand the soil was prepared by mixing light soil with heavier, to make the ground more suitable for the yam. The Indians of the Atlantic coast fertilized by means of fish, the herring especially, and perhaps by means of shells, as the Iroquois are said to have done.

Thus fertilization of the soil was not unknown to savagery, though not generally practiced. Philological evidence indicates that it is not a very old device among the Indo-Germanic peoples. The absence of a word for manure or fertilizer common to the various Indo-Germanic languages indicates that its use by the Indo-Germanic peoples does not go back to a period of great antiquity, being, apparently, not as old as the domestication of animals.

MAGICO-RELIGIOUS ASPECTS OF AGRICULTURE

Where agriculture is an important pursuit there is frequently the practice of magic and a religious importance

attaches to the cultivation or reaping of the crops. Though Frazer has suggested that the accidental results of magic have given rise to the perception that seeds produce plants and have led to agriculture, it seems more probable that agriculture was practiced before magic was applied to the products of the soil. The magical rites practiced by the peasants of Europe, described by Frazer in his *Spirits of the Wild and of the Corn*,[1] for the most part consist of magical ceremonies designed to secure the growth of the crop or the perpetuation of the spirit of the grain. Thus, to leap among the growing grain will, by sympathetic magic, cause the grain to leap, or grow, to a great height. During the harvesting of the crop the spirit of the grain is caught and a crop assured for the coming year.

The Mayas of Central America speak of Balam as a god of agriculture, describing him as an old fellow with a long head. He walks in the air and whistles as he goes—a much-dreaded nocturnal being. Should his people fail to make offerings to him, he vents his spleen by afflicting them with sickness; therefore, the first fruits of the field are for him. The corn first ripe is scattered upon the ground, and pies, the crust made of corn, are prepared for the god to enjoy at his leisure. The pies are seasoned with enough red pepper to torment the palate of any number of Balams. A pie is put in each corner of the field, three being sprinkled with a liquor called balche. The fourth is left without this sauce, possibly for the benefit of any teetotaler friend who may happen to call. The Yorubas, with whom agriculture is an important enterprise, recognize Orisha as the god of farms. There is scarcely a town or village among them which does not have a temple dedicated to the agricultural god Orisaka, or Orisha, and a large number of priestesses and priests are in his service. His first care is promotion of the fertility of the earth, though one of his functions is to cure malarial fevers, to which those who disturb the soil by cultivation are particularly liable. When the yams are ripe an annual festival is held in his honor, at which all partake of the new yams. Vegetables are cooked

[1] London, 1912.

and placed in the streets for the use of those who attend the festival.

ATTITUDE TOWARD AGRICULTURE

According to Herodotus the Thracians regarded tillage as the most degrading and pillage as the most honorable of occupations, a view which many nomadic peoples take. For other reasons, too, agriculture may be scorned. It is forbidden to the Janists of India because it soils and hardens the hands and increases the danger of accident. Even the lowly Todas consider it beneath their dignity to cultivate the land. While the Don Cossacks were purely nomadic, agriculture was prohibited on pain of death, because, it has been surmised, it interfered with hunting and cattle-breeding. Nor was the introduction of agriculture without dire effects. Each Cossack who wished to raise a crop plowed and sowed wherever he thought fit, and retained as long as he chose the land thus appropriated. When the soil began to show signs of exhaustion, he abandoned his plot and sowed elsewhere. As the number of agriculturists increased, quarrels frequently arose. Still worse evils appeared when markets were created in the vicinity. In some villages the richer families appropriated enormous quantities of the common land by using several teams of oxen, or by hiring peasants in near-by villages to plow for them. Instead of abandoning the land after raising two or three crops, they retained possession of it. Thus the whole of the arable land, or at least the best parts of it, became actually, if not legally, the private property of a few families.

Usually tribes forced to give up nomadism for a settled agricultural life have not taken to the latter kindly. The Kirghis have shown a deep dislike for agriculture, though the Turcoman has now come to accept it more benignly, or at least more resignedly.

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CHAPTER XII

TRANSPORTATION

TRANSPORTATION BY LAND

THE simplest method of transportation is carriage by person, using the unassisted hands, back, shoulder, or head. A considerable amount of specialization in such transportation has taken place in various parts of the world, especially in Asia and Africa, reaching its highest development in China, where the natives carry incredible burdens on shoulder or back. In Africa and the Mediterranean region it is customary to carry burdens on the top of the head. This practice is found in both the Semitic and the Negro portions of that continent and in the adjoining Asiatic region. In a few tribes of southeast Asia burdens are carried on the head. In the New World the burden rests on the back, supported by a tumpline which passes over the forehead or the fore part of the head. Shoulder straps, such as are used in the German rucksack and the army knapsack, are little used in savagery.

The carrying of a weight from the end of a stick resting on the shoulder is not common among savages, though the carrying by two or more men of weights resting on a pole is not uncommon. The stretcher, consisting of a medium platform with two handles for each end, was occasionally used, as among the Plains Indians. Moreover, various receptacles were used to assist body transportation.

In North America transportation by sled was known from Alaska to Hudson Bay, and from the northern boundary of the United States to the Arctic regions, save for a strip of country in the southwestern part of this area. The toboggan was used throughout the eastern part of Canada. This was sometimes pulled by dogs, though in many cases the work done by these animals was not considerable and was supplemented by the efforts of men and women. In the northwest

part of the Plains area, and in the north central part, the dog was used as a pack animal, while in the Andean region the llama was thus employed. Though the llama has little more carrying power than has a large dog, it is well adapted to mountain travel, and was used only in the mountainous sections of Peru.

The travois was used in the Plains area, first drawn by dogs, later by horses. It consists of a V-shaped frame, the apex resting on the back of the animal, the ends dragging on the ground. About the middle of this framework is a net or wooden platform on which the load lies. In the Woodland area to the north dogs drag tent poles and bear packs when there is no snow to support sled or toboggan, and probably the travois had its origin in this practice of the North which is found throughout the caribou and bison area and extends into the inland portion of the salmon area.

The wheel was used only in the Old World, where it may have had two centers of origin, one in China and one in Babylonia. It has been suggested that the Babylonian origin of the wheel goes back to the use of logs rolled underneath the weights which they were designed to move. The hewing away of the central portion of the log left two large disks as wheels at each end. The first wheels were solid, spokes and rims being the result of cutting away a portion of the solid wheel.

The need for improved methods of transportation grows as population increases and as economic life develops. In Dahomey, for example, maize and yams usually are housed on the farms where they grow, being taken into the villages in small quantities to supply the daily market. Some of the farms which supply a large town with food are ten to twenty miles distant, yet all the produce is conveyed on the heads of the vendors. Journeys are made with a caravan of from two to three thousand people, who carry goods in packages on their heads. A carrier's burden varies from forty to eighty pounds. Here, where there are neither roads nor vehicles, the traffic gives employment to thousands, where only a few people would be needed for the work if roads and mechanical devices were available.

PATHS AND ROADS

Almost everywhere the native is assisted in his travels by paths. In the land of the Typees, in the Marquesas, there is a labyrinth of footpaths twisting and turning among the thickets, but there are no roads. Central Africa is a network of footpaths, connecting villages and tribes. This is true also of the West Coast, though there, at least in Dahomey, the paths are not so well developed, save along the main lines of travel. Slender footpaths form the only highways of the Malays. The Toda goes as nearly as possible in a straight line when proceeding from one part of the hills to another, choosing no devious route which might afford a gentler climb, mounting the steepest hills without apparent effort. In the Northeast of North America well-worn portage paths penetrated almost everywhere. They went around falls, rapids, precipitous mountains, attaining the objective in indirect manner, with knowledge that the longest way round is sometimes the shortest way there. Paths across the Sierras from California into Nevada were used by the Indians and in places can still be traced. In Mexico excellent roads penetrated the country. As all travel was on foot, engineering and other problems of construction were different from those which confronted the peoples of the Old World in a higher industrial civilization.

BRIDGES

In Peru roads were paved and graded, brooks being spanned by culverts, many of which are still in use. Such culverts were constructed out of large stone slabs resting on supporting piers. The highest development in bridge-building attained by any primitive people was to be found in Peru, where chasms were crossed by suspension bridges or by means of chairs running on cables. The pontoon bridge also was used here. The Khasis of India employ gigantic slabs in the construction of bridges. If the span is less than twenty feet, a single slab four to five feet wide and two feet thick is thrown across. On each side of the bank enormous blocks of raised

sandstone serve as piers, so that in time of flood the water will not reach the under surface of the slab.

In many tropical regions, particularly those of southeast Asia and of Oceania, fine suspension bridges are found. These sometimes extend over wide rivers, occasionally at a considerable height.

A rattan bridge spanning the Vanapa River, in New Guinea, was supported, at one end, at a height of fifty feet above the water, by means of a banyan tree, the span to the opposite bank of the river being seventy yards. There the bridge was attached to a small tree supported by a stout post. On each bank the original stays were fastened by means of rattan to trees further back. The struts, foundation stringers, and rails, two on each side, were netted together by innumerable lacings of fine rattan, giving the semblance of a modern cable bridge. The Dyaks make bridges of stout bamboo. When a stream is to be crossed, an overhanging tree is chosen, from which the bridge is partly suspended and partly supported by diagonal struts from the bank. The bridges are daily traversed by men and women bearing heavy loads. The same combination of suspension and struts is used in carrying a path along a precipice. In Sarawak a footbridge is constructed by planting two rows of long stakes in the ground alternately slanting in opposite directions, so that a small sapling laid in the fork is horizontal and of the proper height. Each pair of stakes is lashed together at their intersection, the bridge being further strengthened by perpendicular posts set under the footway. A pole lashed along the top of each row of stakes serves as a hand rail. One between Paku and Serambo was one hundred feet long and nine feet high.

TRANSPORTATION BY WATER

Not less important than transportation by land is transportation by water. "Navigation made and unmade empires, created and transformed cultures."[1] In Scandinavia boats were used in the Neolithic age, when trunks of trees hollowed out, or a wooden frame-

[1] Robert Briffault, *The Making of Humanity*, p. 90, London, 1919.

work covered with hides, formed the craft. Improvement in ship-building followed the introduction of metal. Necessity taught the use of larger craft in which to venture out on the rough waters. On rocks and stone blocks of the Bronze age period, as well as on various articles of bronze, are many pictures of ships, broad abaft and sharp at the stern. In some of these Bronze-age carvings of Scandinavia, masts, sails, and crew can be distinguished. The ships thus portrayed sometimes are numerous and arranged in rows, giving the impression that they were not used exclusively in the pursuits of peace, or solely for commerce, but frequently engaged in the sea fights which are commemorated by some of the larger rock sculptures.

The raft, the canoe, the dugout, the catamaran, a boat made by joining planks or boards, constitute the most important crafts in use among primitive peoples. In the northern part of New South Wales dugouts, made of the trunks of trees hollowed out by fire, are used; in the southern part, canoes are made of pieces of bark tied together at the ends, the sides held apart by small ribs of wood. Similar types are found on the lower Murray River. If the natives wish to cross a river without delay they strip off sheets of bark and sit astride these, paddling with a piece of wood. If they have on board something which they wish to transport dry, they keep the water out by placing piles of mud at each end of the bark. Here, perhaps, are the beginnings of the canoe. On the Nogan such "canoes" are used for fishing. No canoes seem to have been used west of Clarence Straits, at the southern part of the Gulf of Carpentaria, nor on the south coast. The same design of raft was used on the Northwest Coast. Near Port Darwin rafts were made of small bundles of wood, unshaped, lashed together, though along the coast near the Forestier Group rafts were not used. A primitive form is found near Bathurst Island, consisting of a mangrove trunk with three stems growing out from one root in nearly the same plane.

Canoes are used by all the Papuasians, the commonest craft being the dugout with single outrigger. This is found

almost everywhere except in part of the Solomon Islands, where finely made plank canoes are employed. Large double canoes furnished with sails are found in Fiji, New Caledonia, and New Guinea. Outrigger canoes were common on Rossel Island. Rafts and small dugouts, with or without an additional gunwale, are found among the Sakai. Larger boats capable of carrying sixty or seventy men, with a flat-roofed cabin from which to fight, are found among the Ibans, of Borneo. These are propelled by oars. The sail is extensively employed in the Malaysian and Polynesian area. The Maoris make sails of light bulrush mats, triangular in shape. The Malays and Bugis handle sailing craft with dexterity. On the lakatoi, a raft made by lashing canoes together, are carried the pots which the people of Motu take to Baimuru on the western shore of Port Romilly, in exchange for sago and tobacco.

When the Eskimos near Frobisher Bay wish to cross a river they make floats by filling deerskins with shrubs. The rafts of inflated sheepskin, which for ages have been the chief means of downstream traffic on the rivers of Mesopotamia, consist of a square framework of interwoven reeds and branches, supported by the skins of sheep and goats. They are guided down or across the current by oars and poles. "These were the primitive means by which Layard transported his winged bull from the ruins of Nineveh down the Persian Gulf, and they were the same which he found on the bas-reliefs of the ancient capital showing the methods of navigation three thousand years ago. Similar skin rafts serve as ferry-boats on the Sutlej, Shajok, and other head streams of the Indus. They reappear in Africa as the only form of ferry used by the Moors on the River Morbeya in Morocco; on the Nile, where the inflated skins are supplanted by earthen pots; and on the Yo River of semi-arid Sudan, where the craft is made of reeds and is buoyed up by calabashes fastened beneath." [1] The Mesopotamian type of raft is found also on the Jordan, between the Sea of Galilee and the Dead Sea.

The Tasmanians used the catamaran, made of the buoyant

[1] Ellen Semple, *The Influence of Geographical Environment,* New York, 1910.

and soft velvety bark of the swamp tea tree, consisting of a multitude of small strips bound together. The catamaran is found practically throughout the Oceanic area, the region of the outrigger, the double canoe, and the sail.

North America supplies many interesting types of craft. Among these the best known is the canoe of birch bark employed practically throughout the area of the birch tree, used especially in the area of the Great Lakes, eastern Canada, and northeastern United States. Many of these are small and can be carried easily over the portages. They differ in style from tribe to tribe, and even, to some extent, between individuals. The Eskimos employ the kayak, a small narrow low boat covered with skin, save for an opening in the center where the rower sits, and the umiak, a boat open and rowed, used generally by the women. The kayaker is the only one in America who uses the double paddle, and the umiaker is the only one who uses oarlocks—the latter possibly an introduction from Asia. It is doubtful whether sails were used by any of the tribes in America prior to the coming of the whites, the most probable area of their employment prior to the coming of Europeans being the North Pacific coast and the West Indies.

On the Upper Mississippi and the Upper Missouri, in the area of the buffalo, a bull-boat, made by covering a framework with buffalo skin, was used for crossing rivers. As the boat was circular, it had to be propelled with a forward-reaching stroke. This type of boat was in use also in southern Wales.

The balsa, a rude low boat of reeds lashed together, was employed in central and southern California and on Lake Titicaca, in Venezuela.

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CHAPTER XIII

TRADE

One of the most important phases of primitive culture is trade, the exchange of articles between tribe and tribe, or between group and group. In some cases trade is carried on through a large number of tribes and over large stretches of territory. Occasionally the most important articles used by a people are those which they procure by means of trade. Trade widens the economic horizon and enlarges the culture. It provides channels through which culture spreads from locality to locality.

TRADE IN PALEOLITHIC TIMES

Although trade is extensively developed only in the higher cultures, it is found everywhere in savagery. Not only is it a widely distributed feature of savage culture; there is evidence of its great age as well. In many prehistoric areas there is evidence of early trade. In Europe in the Paleolithic Aurignacian age there was trade in shell ornaments, and in the later Magdalenian there was trade in shells from the Mediterranean area to the French caves. The presence of sea shells in the ceremonial burials at Les Eyzies, a site far removed from the sea, indicates trade, or, as an alternative, long expeditions. Some of the raw material out of which Paleolithic implements were fashioned seems to have been traded. Flint cores are found in localities where flint does not now occur, while the obsidian implements found in various parts of Europe can have had but few quarry sources—as is true also of obsidian in prehistoric North America—obsidian being found in limited areas in France, Bohemia, Hungary, the Greek archipelago, and Italy (near Naples).

TRADE IN NEOLITHIC TIMES

The glass beads from the early strata of the lake dwelling of Wanwyl indicate trade by sea with either Phœnicians or Egyptians, while the different kinds of flint, originally derived from distant parts of France and Germany, worked into knives, arrow-heads, and other implements, denote trade with the northwest. Polished Neolithic celts made of a jadelike green stone have been found in many parts of Great Britain, in France, Belgium, and Italy. As the Alps is the only region in Europe in which this stone occurs, it must have been traded extensively from that region to the above-mentioned localities, either directly along the river or coastal routes, or by slow infiltrations from locality to locality. Long before the introduction of metals, obsidian was imported into Crete from the island of Melos.

The Adriatic was a center of Neolithic trade. In the Late Neolithic period pottery came from the Balkans into South Italy, and after the Neolithic, came into Italy at various points along the coast, the Italian peninsula being in active communication with various parts of the Mediterranean. South Italy then belonged to the Ægean circle of culture rather than to the North Italian. The pottery is of the same context as that of Crete, showing at least a common source for the two. One trade route from the Ægean went by way of South Italy and Sicily to Sardinia, thence to Liguria. The only places in Italy in which one finds Neolithic figurines of clay are Sicily and Liguria, figurines common in the Ægean area, but absent from Italy save in the places mentioned, thus demonstrating Ægean origin. This route corresponds to the distribution of the rock graves which occur in South Italy, Sicily, and Sardinia. Peanosa, the most northerly point at which they have been found in Italy, would be a natural place to call on the route from Sardinia to Liguria. This route, or a part of it, corresponds with that taken at this time by the obsidian trade, and the transmission of the Ægean culture from Sicily northward may have been accomplished by means of barques which carried obsidian.

In North America there was considerable trade in the prehistoric period—that is, prior to the coming of Europeans. The copper implements made near Lake Superior found their way to distant tribes. No obsidian occurs east of Wyoming and Colorado, and the only mines known to have been worked were in Mexico or west of the Rockies in California and in Oregon, yet thousands of obsidian implements have been found in the mounds of Ohio, more than two thousand miles distant from the nearest known mine. They were traded across the Alleghanies to the Delaware and other Atlantic-coast tribes. Similarly, many shells were traded to parts far distant from the places in which the shell-fish from which they were taken are indigenous.

The copper bells and ornaments found in the prehistoric ruins of the Southwest probably were brought there in trade from Mexico, as was also the pottery with textile backing, fragments of which survive.

TRADE IN THE BRONZE AGE

The distribution of the spiral design on bronze is record of trade routes. Schliemann found the spiral a prevalent form of ornament in Mycenæ. This Mycenæan form probably was traded between Crete, Egypt, and the shores of the Ægean Sea between 1580 B.C. and 1321 B.C. It probably spread thence into Europe by the Danube route. It is found in Bavaria, North Germany, and Scandinavia, though absent in North Italy, France, and Britain, a distribution which the Danube trade route will explain. In the British Isles the spiral occurs only on stone balls, the stones of cists, and Megalithic monuments, the most conspicious examples being at New Grange, Ireland. As the spirals of Scandinavia and the British Isles are connected by the same technical artistic device, we infer that the British ornament came from Scandinavia. Glass, amber, and ivory found at Hallstatt, Austria, indicate an extensive commerce. Egyptian glass beads have been found in British barrows; probably taken to the island by Phœnician traders in exchange for tin. The natives of the Tin Islands, the Cassiterides, bartered tin and hides with

Mediterranean merchants in exchange for pottery, salt, and articles of bronze. Probably along this trade route Egyptian blue heads reached Britain by 1300 B.C., or perhaps by 1400 B.C. But the most interesting prehistoric European trade is that in amber.

Amber occurs occasionally in a natural state on the shores of Lake Constance, whence some of the beads in the Swiss lake dwellings may have come. It is found sporadically about the shores of the Mediterranean and Black seas, on the shores of the Adriatic, and on the eastern shores of Britain, but most of the amber comes from the Baltic, the area of dispersion for prehistoric Europe. The peoples of the Baltic probably traded it to the south in exchange for bronze and gold. In the Bronze age, finds of Scandinavian amber were scarce, while in the preceding Stone age they were abundant. Exportation of amber from this region in the Bronze age will account for its scarcity there at that time. Amber was a suitable medium for trade and barter. That ornaments of amber were highly valued is shown by the fact that they were deposited in almost all the larger stone graves of the North. The amber ornaments exhumed from the great giant chambers in West Götland, far from the sea, were brought from the coasts, especially from Scania. The Danish islands received their supply from Jutland. The amber from the coasts of Jutland spread over the interior of the peninsula, found its way southward, thence along the rivers Elbe and Rhine, into Germany and France, where the stone graves contain ornaments of amber traceable to North Jutland. Probably North Jutland formed the first starting-point for the amber trade between the Baltic and southern Europe. Amber was traded for woven garments, weapons and tools of metal, bronze and gold ornaments, products of superior technique.

In the late Neolithic and early Bronze ages obsidian was an important article of trade. Obsidian from the island of Melos, in the form of knife blades, formed the basis of an important trade. Obsidian from Russian Armenia was traded into Susiana, fragments and flakes of this rock, which can be identified because of its red veins, being common in the

oldest deposits of the tells of Elam, Pusht-i-Kuh, Luristan, the Bactrian province, and all the western part of the Persian plateau.

TRADE IN THE IRON AGE

In the Iron age, as in the preceding Bronze age, there was considerable trade between the British Isles and the north.

In the Early Iron age an important trade route led from the north by way of the Danube to Roman lands on the south. It followed the rivers Oder and Vistula, which were used for trade in the Late Bronze age. Rune-writing, which is of Roman origin, probably followed this trade route from south to north.

AFRICA

Africa is pre-eminently the land of markets. The Mpongwe is described as a "trader by instinct." Members of his tribe serve as middlemen for interior tribes and others which carry on trade to the coast. In the Gaboon district trade follows definite routes, the trader being expected once in six months at the various towns along the route. Upon arrival he finds the people eager for trade goods, the men awaiting tobacco, the women beads and other ornaments. Should the inhabitants of one of these towns kill a trader, the other towns along the route would hold them responsible and visit condign punishment upon the offending village.

In Yoruba there is considerable trade in sheep, goats, fowl, pigeons, and other animals. In some villages the flesh of sheep, goats, and cows is sold daily in the market. Markets for the sale of provisions and other everyday necessities are held daily, the large market for the sale of general merchandise being held every fifth day. At the latter thousands of people are busily engaged in traffic. The largest market is at Ilorin. It is open daily and does a thriving business; at it may be seen men from every part of Central Africa and, frequently, from Tripoli and other lands to the north. The merchandise

includes a great variety of articles, African, Asiatic, and European, from a slave to a ready-made pen and a bottle of ink. The trade with people nearer the coast consists in palm oil, ivory, cotton, cloth, indigo, iron, horses, cattle, sheep, and other articles, in exchange for which they receive cheap guns and powder, calicoes, velvet, salt, and other things from Europe and America.

For a long time the Moors have traded along the west coast. During the visits of Mungo Park, in the latter part of the eighteenth century, they were taking into Nigeria salt from Beeroo and beads and corals from the Mediterranean, to exchange for gold dust and cotton cloth. The cloth they sold to great advantage in Beeroo and other Moorish lands, where, because of absence of rain, no cotton was cultivated.

The brass of Central Africa is procured from the outer world, through Europeans or Indians on the coast. None of the native tribes combine copper and zinc into brass amalgam, yet brass was used by many African tribes which had not seen a white man. Sir Harry Johnston compares its spread over the continent to the distribution of tobacco and Indian corn—"articles which have defied all obstacles and have swept across Africa into its darkest recesses in two or three centuries." [1]

INDIA

The Todas produce and sell ghi, clarified butter, obtaining in exchange rice and grain. A desire to live near the market has caused the abandonment of some villages on the more distant hills.

MALAYSIA

The Malay and the Bugis are keen traders, their vessels being found almost everywhere along the coasts. An important article of trade is the edible nest of the swift which builds in caves in the islands, particularly in Java and Borneo. These nests are exported to China, where they are highly esteemed table delicacies.

[1] Sir Harry H. Johnston, *British Central Africa.*

AUSTRALIA

A considerable trade is carried on among Australian tribes. The Kakadus and the Kulunuglutjis, of Northern Territory trade with each other spears in which they severally specialize.

A lively trade is carried on by Queensland natives, particularly those near the gulf country. The Mitakoodis obtain red and yellow ocher and "copper stone" from the Kalkadoon in the Selwyn ranges; with other goods, apparently of their own manufacture, such as water bowls, women's belts, fighting-spears, shields, etc., they go to the markets at Mullengera, Dalgonally, Eddington, and Canobie, and exchange their goods for others made by the natives there, or for shells used to ornament the shell throwing-stick, or the white shell chest ornament. These articles have been brought from the Gulf of Carpentaria by way of Normanton and Croydon to Fort Constantine, a total distance of some two hundred and thirty miles.

In trade transactions the tribes make use of message sticks. These usually are a piece of wood two to four inches in length, of various shapes and colors, incised with distinctive markings. The markings serve the purpose of recognition by the maker or his friends, and convey no message. The messenger conveys the message by word of mouth, the message stick being simply a guaranty of good faith, and enabling him to pass unmolested through hostile country. Having handed over the message stick and satisfied the proposed vendor of his *bona fides,* the latter takes charge of the stick and tells him the pituri (native tobacco) will be ready in a few days.

MELANESIA AND POLYNESIA

In the Torres Straits islands trade was carried on extensively, the natives of Saibac being middlemen for the Western Islanders and the Dandai villagers of New Guinea. If the people of an island have been unusually successful in securing turtle or dugong they take some of their superfluous meat to another island for purposes of barter. Usually a turtle is taken alive, and a recently killed dugong is conveyed entire.

Smoke-dried turtle and dugong meat and fish are used as food on voyages and are bartered, the dugong being abundant in only a few places, though found throughout the Straits. Objects manufactured from vegetable products are made only in those islands in which the plants grow. The Muralug people import leglets, exporting guards to the Kulkalaig and the Gummuleng.

The men of Muralug, Tutu, and the coral islands secure bows from Moa, Yain, Nagir, and other islands where the bamboo grows. Leaf tobacco also is an article of intra-insular trade. The Miriam people, in the Eastern Islands of the Torres Straits, are connected with New Guinea by two trade routes. The more important is the one used in the transit of canoes, passing by Erub, Patama, and Mibu to Kiwai island. The other route is by way of Erub, Uga, Danuit, Tuta, Eri, and Mawata, or, infrequently, Tureture. Occasional trade is carried on with the Western Islands and Murray Island, going by way of the small intermediate islands. The following articles are exported: necklaces of olive shells; nose-sticks of various shells; crescentic chest ornaments made from pearl oyster shell; other shell ornaments and unworked shells; turtle shell and turtle flesh, the latter serving as a gratuity rather than as a commodity for exchange. The chief imports are cassowary feather ornaments, long plumes for the arm guard and for the body belt; head-dresses of bird-of-paradise feathers; dog's-teeth necklaces; boar's tusks; fringes; petticoats; mats; canoes; drums; clubs, bows, and arrows. Pottery is traded along the coast of New Guinea, and drums, arrows, and clubs from New Guinea to the Torres Straits. Fleets of trading vessels sail annually to and from the Motu tribe in the vicinity of Freshwater Bay to Port Moresby, giving sago in exchange for pottery.

Pottery is traded from this portion of New Guinea to the Papuan Gulf, a distance of two hundred miles. Three or more canoes are lashed together and fitted with crates, constituting a trade vessel known as a lakatoi. A fleet of twenty lakatoi carrying about six hundred men, each man with about fifty pots, has sailed from Port Moresby. In return for the 20,000

to 30,000 exported pots the natives procure a cargo of 150 tons or more of sago. Similarly, the Nadia, from the Massim District, near Milne Gulf, make annual trading voyages from Murna to exchange cocoanuts for taro. A great many objects, such as the beautiful lime calabashes, are bartered from the Woodlark Islands, the inhabitants of which, in large sea-going canoes, undertake extensive trading voyages. Trobriand is visited from Normanby, Welle, and the Woodlark Islands, though the natives of the first mentioned island probably do not make trading voyages. The pottery made on Teste Island is traded as far as D'Entrecasteaux, Chads Bay, South Cape, Woodlark Island, and perhaps also to the Louisiades. The Fly River has probably served as a trade route and a culture route, along which objects went from the coast to tribes living toward its source.

Before Europeans went to British New Guinea, stone adze blades were taken to the gulf as articles of trade. The Motus obtained them from the people further inland, and these from someone else, but the people do not know whence they came originally.

During the fishing season the Roro peoples, along the Gulf of Papua, New Guinea, collect at the mouths of the large rivers, smoke fish, and barter them for the fine taro and enormous sweet potatoes grown by the Mekeo women. They take advantage of the prevailing seasonal winds to visit the coastal tribes northwest and southeast.

In October and November, the Papuan spring, they repair to Toaripi for sago, which grows in inexhaustible quantity in the neighborhood of the great rivers. Here they exchange for bundles of sago the thin clay pots of Ziria, the main village of Rabao Island, pots celebrated all along the coast. The Roro sail in their canoes to Teste Island, there to exchange their sago for Teste Island pottery. On the return journey they stack the sago in packages in the bottom of the trading canoes, some four or six of the ordinary canoes being lashed together the better to bear the added burden. In March or April, the heavy rains over, the annual visit is paid to

the jewelers of Taurara and Pari, workers who excel in the manufacture of necklaces of small shells and of polished shell armlets. On Hood's Peninsula the Kalo people, who live on rich alluvial soil, grow a superabundance of cocoanuts, bananas, yams, taro, sweet potatoes, and the betel nuts which are chewed with lime. The Kalo absorb the trade of the interior, for they command the mouth of the river Venigela, along which the trade must pass. Feathers and feather ornaments, grass armlets, boar's tusks, bamboos, trees for canoes, wood for houses, and other jungle produce are retailed to the coast tribes; fish, shell-fish, shell ornaments, and other articles are obtained in exchange.

The Wari people of Teste Island import wood for their houses, and also, like the natives of the Engineer group, who are great traders, procure canoes from Pannaet (Deboyne Island). Owing to the trading among these islands and with the mainland, it is difficult to determine from specimens of material culture in European collections the style of work characteristic of the respective islands. As stated above, the Fly River, New Guinea, has been an important culture route by which many articles have reached the natives of the interior, some of them coming, it may be, from Malaysia. Probably by this route tobacco found its way to the Torres Straits and the Gulf District, thence to the southeast.

The natives of Ellice Island sent pearl fish-hooks from island to island by means of frigate-birds which they kept as pets, feeding them on fish. When there was a favorable wind, the birds were started off to another island, where they perched and allowed their cargo to be removed. In 1876 Turner found that native pastors on four of the islands corresponded by means of these carrier-birds.

The Maoris along the Wanganui River catch parrots in great numbers; these they roast and preserve in fat, exchanging them for dried fish obtained from their fellow-countrymen in other parts of the island.

The Negritoes of the Philippines barter with the Tagalas, obtaining supplies, chiefly of iron, in exchange for honey and wax.

NORTH AMERICA

We have referred to the widespread trade in North America in prehistoric times. Shells and shell ornaments taken from the shores of the Gulf of Mexico have been found in Wisconsin; red pipestone ornaments and pipes made from deposits in the catlinite mines of Minnesota, in New Jersey; beads of shell from the Pacific coast, in the Mississippi Valley; obsidian arrow-heads from Oregon, or the Southwest, or Mexico, east of the Alleghanies; copper implements made in the Lake Superior region, in several Eastern states. In historical times the trade between various tribes has been considerable. Among the Hurons, from early spring until autumn, trading parties went out in every direction among neighboring tribes. They consisted of one or two canoes each holding three or four men, or comprised a large number of boats traveling together, filled with traders, their wares and provisions. Permission to go was obtained from tribal authorities, so that the village would not be left without the protection of a garrison. The Iroquois and Hurons bartered surplus maize and maize products for the skins and birch-bark canoes offered them by the non-agricultural nomads of the North. The Iroquois obtained much of their wampum through barter. Most of the finer materials used in making arrow-heads, such as jasper, white quartz, and chalcedony, came from other parts of the country. The first man who found a new line of trade and made it profitable enjoyed a partial monopoly of that part of the business, as a rule sharing it only with members of his clan or with his children. This was true of both Iroquois and Hurons. The principal trade of the Indians of the Plains was in buffalo robes. In 1637 the Abanakis ascended the St. Lawrence as far as Three Rivers, to trade porcelain beads, then serving as wampum, for beaver skins. In the spring the Nenenot went to Fort Chimo, in Eskimo-land, to trade the winter hunt of fur-bearing animals. Alaskan tribes have been much given to trading. The Kai-yuh-khotanas trade dry fish, wooden ware, and birch canoes with the upper Yukon and Shageluk people. The Koyn-kukh-otanas

act as middlemen in trade between the Mahlemut and the Lowland Tinneh. The Unakhotanas meet on neutral ground every spring to trade with the Kutchin tribes from the Upper Yukon and Tinneh. The same was done by the Tenan-kutchins and the Ah-tena.

The Tlinkits traded on neutral ground with inland tribes. The Yakutats, who inhabit the region between the coast mountains and the sea, from Bering Bay to Lituya Bay, travel in canoes west and southeast for purposes of trade. Some Eskimo groups meet every summer for the purpose of trading. Moose skins, eagle feathers, skins of red fox, black fox, wolverine, are common articles of trade between the Point Barrow Eskimos and natives to the east of them.

In 1826, though the Point Barrow Eskimos had not seen a white man, they were in possession of tobacco and articles of Russian manufacture, such as copper kettles, which they had obtained from Siberia through numerous intermediate groups. In summer, voyages of trade were made by Alaska Eskimos to Siberia. Notwithstanding their limited desire to possess property, the Greenland Eskimos have kept up a kind of trade among themselves, and trade has been the incentive to some of their most distant journeys. The objects for barter include those produced or found in certain localities only and considered almost indispensable—such as soapstone and the lamps and vessels manufactured from it, whalebone, narwhale, walrus teeth, certain kinds of skins, finished boats and kayaks, rarely articles of food. The articles looked upon as most precious were those of metal or other foreign products. Articles from Asia reached the Eskimos as far east as the shores of Davis Strait or Hudson Bay.

From Mount St. Elias south to California trade was carried on, transportation being principally by dugout canoes. Copper, horn for spoons, eulachon, and Chilkat blankets were exchanged for abalone and dentalium shells; baskets were bartered for baskets or for the teeth of a species of southern shark, or for the furs of the interior Indians. The Haidas regularly visited the Tsimshians, trading canoes for eulachon oil, for wood suitable for boxes, or for mountain-

goat horn. The Tlinkits traded further south the copper which they had obtained from tribes to the north. On the Columbia River trade was carried on in camass and in moose meat. In southern California the Indians in the islands traded to the mainland baskets, feathered wearing apparel, nets, vessels of steatite and of serpentine, various implements of bone and of stone, wampum, sea-shells, shell ornaments, and cured fish. In exchange for these they obtained from the tribes on the mainland material for making baskets, skins, nuts, prepared meats, and other articles not procurable on the island. The Indians of the mountains and of the interior valleys of California constantly traveled to and fro for the purpose of barter, trails used for this purpose being numerous, some from the range to the coast being still visible. In the Pueblo country there was a lively local and distant commerce, some of the trails along which it went being hundreds of miles in length. The coming of the Spaniards stimulated this trade. The Hopis traded cotton products with outside tribes, a commerce which they maintain to this day. The Zuñis trade with the Navajos. The latter have a wide trade, carrying on commerce with the Havasupais, Hopis, and Walapais, from each of which tribes they procure baskets. The Mississippi area was a vast receiving depot of commerce, in easy touch with other areas about it by means of portages between the headwaters of innumerable streams: with the Chesapeake Bay, the Great Lakes, and the Mackenzie basins through the Ohio and the main streams; with the east Rockies and the Columbia River through the Missouri and other large branches of the Mississippi in the west. Buffalo skins and beads went from the Plains area to the Pueblos, and pemmican and beads were traded extensively.

In Colombia salt was the principal article of trade. When the Spaniards came to the New World the Mayas of Yucatan were trading with Cuba, using, for this purpose, large canoes. Bags of cacao, containing a specified number of beans, were recognized forms of currency in Mexico.

In the savannas and forests of British Guiana much trade is carried on. There each tribe has some manufacture

peculiar to itself, and its members constantly visit other tribes, often hostile, for the purpose of exchanging the products of their own labor for articles produced only by certain other tribes. "These trading Indians are allowed to pass unmolested through the enemy's country, and it is these traders who carry with them the latest news. The Wapianas, who live far in the interior, build boats for all the tribes in their neighborhood. They visit the Tarumans and Woyowais, carrying with them canoes, cotton hammocks, and now frequently European goods, and, leaving their canoes and other merchandise, they walk back, carrying with them in exchange a supply of cassava graters and leading hunting-dogs, the Tarumans and Woyowais having practically a natural monopoly of the manufacture of these graters and of the breeding and training of hunting-dogs. The Macusis, who have a natural monopoly of the preparation of the poison called urali, required for the darts of the blow-pipes and in cotton hammocks, now visit the Wapiana settlements to obtain graters and dogs in exchange for their manufactures; and they again carry such of these graters and dogs as they do not themselves require, together with their own urali and cotton hammocks to other Indians, to the Arecunas, for instance, who give in return the balls of cotton or blow-pipes they have manufactured, or they take these articles to the true Caribs, who pay in pottery, which is their specialty. Like the Motu tribes, the Guiana tribes have the advantage, but to a far greater extent, of numerous and extensive river systems." [1]

In parts of Brazil there is a brisk trade from tribe to tribe in pots, stone hatchets, hammocks, cotton thread, necklaces of mussel shells, and many other products.

TRADE BY MEANS OF "GIFTS"

In many cases the giving or exchanging of presents assumes such importance as to merit consideration as a form of trading. On the lower Yukon and southward is a trading custom known as *pa tukh tuk*. A man takes an article into the hut and gives it to the man with whom he wishes to trade,

[1] H. Ling Roth, *Early Trading*. Halifax, England, 1908.

saying, "It is a *pa tukh tuk*." The other is bound to receive it, and give in return an article of about equal value; the first man then brings something else. This continues until, sometimes, two men exchange nearly everything they originally possessed; the man who received the first present is bound to continue until the initiator wishes to stop.

Fur-traders sometimes took advantage of this custom to force an Eskimo to trade his furs when they could get them in no other way. A fur-trader secured in this way from one man the skins of thirty mink, eight otters, four seals, two cups and saucers; when the Eskimo proffered his rifle, the trader stopped the transaction.

Among the Indians of the Northwest Coast prevails a custom known as the potlatch, at which a chief or wealthy man gives away the major portion of his property. This stimulates some rival chief, who in turns gives a potlatch at which he tries to outdo his predecessor. Some consider the custom primarily economic; whatever its origin or stimulus, it furnishes one of the chief means of local exchange.

Among the Sacs and Fox a party from the lead mines brings lead; another party brings dried fish and mats for the winter lodges. Presents are then made by each party; the first, giving to the others dried buffalo and deer; they, in exchange, presenting the first party with lead, dried fish, and mats.

The Iroquois gave presents to members of inland tribes who visited Lake Superior—to confirm a previous peace, they said, but really to obtain the pelts with which these tribes returned the Iroquois' favors. Frequently the thing which is for sale is sent to a cabin, whence in return something else is sent back, regarded as the price of the article received. If the trader is not satisfied and no more attractive offer is made him, he returns what he has received and gets back his own merchandise. A general interchange of property often took place at the midwinter annual "dream" festival which the Iroquois held.

In central Brazil interchange of gifts by hospitality prevails. The Bakairis translate the Portuguese *comprar,* "to buy,"

by a word signifying "to sit down," since the guest must be seated before he receives his present.

In parts of the Sudan the constant giving of presents, "only a concealed form of begging," frequently becomes burdensome to the traveler. The gifts of hospitality received in the camp of the Hausas are in accord with custom and often are welcome. With each stop in a larger town things frequently are obtained from high and low, ostensibly given as a mark of respect to the white man, though in reality because the donors expect a three- or four-fold response from the European. Many a poor woman has purchased the hen or duck which she presents in order to do a profitable piece of gift business with it.

Almost every object that the Andamanese possess is constantly changing hands. If one is asked for something he gives it, and the recipient returns something of about equivalent value.

Local groups had meetings from time to time, organized by the more prominent men, invitations being sent out when the place and time had been arranged.

"The visitors, men, women and children, would arrive at the appointed time, and would be accommodated as well as possible by the hosts. During the first few hours, as the natives themselves told me, everyone would feel a little shy and perhaps frightened, and it would take some time for this feeling to wear off. The visitors would bring with them various objects, such as bows, arrows, adzes, baskets, nets, red paint, white clay, and so on. These were given by the visitors to their hosts, and other presents received in return. Although the natives themselves regarded the objects thus given as being presents, yet when a man gave a present to another he expected that he would receive something of equal value in return, and would be very angry if the return present did not come up to his expectations. A man would sometimes mention, when giving his present, that he would like some particular object in exchange, but this was the exception and not the rule, and the process cannot be spoken of as barter. In certain cases it undoubtedly served a useful economic pur-

pose. Thus, if a local group had no red ocher or white clay in their own country, they could obtain these commodities by exchange with others who had." [1]

In New Zealand a man sent another a present, expecting something in return, often giving a hint of what he desired.

The Samoans found frequent opportunity for exchange of gifts. At marriage the family and friends or relatives of the bride presented the family of the bridegroom with *tonga,* which include many kinds of fine mats and native cloth. In return for these they received from the bridegroom and his friends *oloa,* which included canoes, pigs, and foreign property of any kind which might fall into their hands, such as knives, hatchets, trinkets, cloth, garnets, etc. The parents and other relatives of the adolescent girl collected mats and cloth and prepared a feast to which they invited the unmarried women of the settlement. After the feast, the property was distributed among the guests and they dispersed—a custom which has its counterpart on the Northwest Coast of North America. At the feast ensuing upon the birth of a child the relations of the father bring pigs, canoes, and other property, these being exchanged for the *tonga* brought by relations of the mother, consisting of the leading articles manufactured by the women, such as fine mats and native cloth. Another method of procuring property was by giving one's child to another, who adopted it and then paid over certain property in exchange for the privilege. At a burial all comers brought presents; the following day the presents were distributed, each obtaining something in return for his contribution.

A festival, semi-religious, held by the Balsanas, of New Guinea, unites, every ten or eighteen years, the Bakana, Jobim, Tami, and Kai tribes, who gather to resume trade relations, the main article for sale being pigs. During this time all feuds between the tribes are in abeyance.

Trade is one of the main stimulations to culture development. It brings peoples into contact, makes the raw materials or manufactured articles of one group available to another,

[1] A. R. Brown, *The Andaman Islanders.* Cambridge, 1921.

and extends the economic horizon. More important still, it establishes new culture contacts. Peoples who meet to exchange articles are apt to indulge in an exchange of ideas; sometimes the unconscious purpose to exchange ideas serves a larger need than that served by the conscious desire for trade in material objects.

Trade routes, then, are the routes by which culture passes from region to region, fructifying a barren soil, enriching a soil already fertile.

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CHAPTER XIV

MONEY AND FINANCE

MONEY AND CURRENCY

THINGS possessing high intrinsic value, especially if they can be used without alteration, serve as currency among primitive peoples: in the Papuan area, strings of small shell disks; in Fiji, whale teeth; in New Caledonia, braids of flying-fox fur; in the New Hebrides, mats; in the Torres Straits, arrows; in Santa Cruz and the Banks Islands, feathers; in the Solomon Islands, porpoise teeth and shields; in New Guinea, stone axes. In Samoa mats, the most valuable property, served as currency; after contact with Europeans they were valued at from half a dollar to ten dollars each. In New Britain short lengths of cowry coils are used as the basis of exchange. On Rossel Island shell money was common. In the Loyalty Island red hair taken from below the ear of the flying-fox served as currency.

In Micronesia stone, beads, bits of glass, porcelain, or enamel are used as currency. Seven kinds of money are found in the Pelew Islands, three of them circulating only among chiefs. These consist of fragments of white or of green glass, polished enamel beads, and the atlas vertebra of the rare Halicore dugong. In the Carolines the most frequent unit of value is the *fe*. This is a large piece of yellow granular limestone, a foot to two yards in diameter, shaped like a millstone, weighing up to several tons. The ordinary currency consists of pearl shells, strings of various polished stones and of certain species of shells constituting the currency of the chiefs.

Plaques of nut shells and sea shells strung on long cords of cocoanut fiber constitute the money of the Gilbert Islanders, polished beads of cocoanut shell, bracelets of tortoise shell,

and spondylus shell armlets being the currency of Mortlock. The stone ax is the medium of exchange in the Louisiade Archipelago, ten to fifty being the price of a canoe. Pigs and wives are valued in that currency.

In many parts of Africa iron in the mass or as an implement served as the medium of exchange. Hoes were used as money by the Barongas and by tribes on the Upper Congo. Cowries serve as the medium of exchange in Dahomey. These have been introduced from the east coast, the shell-fish from which they are made not being found on the west coast. Beads previously served this purpose, at least as early as the sixteenth century.

On the Upper Nile copper and brass have taken the place of cowries, slaves, and goats, the currency of Nyangwe. Brass and copper, in the form of rings, circulate as currency throughout equatorial Africa, also iron axes, rings, or pieces of iron in the shape of a horseshoe or of a hoe. Three iron hoes was the fare charged Livingstone for putting ten persons across Lake Bemba.

From the Sudan to beyond Adamowa cotton cloth in thin strips is used as currency. In Borum, "tobes" or "shirts" form the medium of exchange, pieces of cloth not large enough to be used as garments.

Throughout the cattle-raising portions of South Africa cattle are the medium of exchange. Practically all pastoral peoples use their chief animals, cattle or sheep, for the purpose. The money of the Bongos consists of spade-shaped disks. Hoe-and-spade money is widely used in Africa. Crosses of copper and also ingots of native iron hammered out from nuggets of iron ore are used. In North America wampum was the common medium of exchange in the Northeast, especially among Iroquois and Algonkins. In the Plains area buffalo robes served this purpose; after the introduction of the horse the pony was the common medium of exchange. In some areas, as among the Blackfoot, the medicine-bundle was almost equivalent to a larger currency.

Among the Eskimos, fish-hooks, especially iron ones, commonly were used as money, knives and pipes serving a similar

purpose. On the Atlantic coast tobacco constituted the medium of exchange and was adopted by the early English settlers. In other northern parts of the continent pelts were the currency. Before the advent of the Russians, the unit of value common among the Yukon Eskimos was the skin of a full-grown land otter, later replaced by the skin of the beaver. Toward the interior the beaver skin was the ruling unit, while in some parts, even yet, the skin of the muskrat is the medium of exchange. Among the Kutenai, of southeast British Columbia, the word for a quarter of a dollar is "muskrat." English traders reckoned prices in skins, French traders in *"plus"* (*pelus, peaux*). During the Colonial period, and at various times and places during the pioneer occupancy of the West and North, furs were legal tender. Among the Crees the standard of exchange was a beaver skin. Three marten, eight muskrat, a lynx, or a wolverine skin, was equivalent to one beaver; a silver fox, a white fox, or an otter was reckoned as two beavers; a black fox or a large black bear, as four. A coarse butchers' knife was one skin; a woolen blanket or a fathom of coarse cloth, eight; a fowling-piece, fifteen skins. Woolen blankets constituted the medium of exchange among the Kwakiutls. They possess also copper plates, each having individuality and being easily distinguishable from others. Their values are expressed in terms of blankets, some being worth 5,000, some 7,000, blankets. The value of the copper depends upon the amount of property given away at the festival at which the copper plate is sold, the oftener the plate is sold the higher its value, each purchaser investing more blankets in it. Among the more northerly tribes of the Northwest region dentalia shells were not greatly valued, elk and moose skins formerly constituting the medium of exchange, although the skins of other animals as well were used for this purpose. The blankets introduced by the Hudson Bay Company later displaced this older medium of exchange. Among the Tlinkits, prior to the use of European blankets deer skins served as the medium of exchange. Twelve to twenty were equivalent to a slave, five or six to a sea-otter, and ten to fifteen to a good canoe.

Another standard almost universal in the Northwest Coast region was the slave. In some areas pieces of cedar bark prepared for roofing served the purpose. The interior Salish of British Columbia used Indian hemp bark, arranged in bundles about two feet long and two inches in diameter, tied at both ends, six of these bundles constituting a "package," a larger denomination of value. Dried salmon, a hundred constituting a "stick," formed another unit of value. In addition to dentalia, the Hupas and the peoples of the Klamath River, in northern California, used the scalps of woodpeckers. Among the Pomos clam-shell beads served as money, forty of them being the equivalent of twenty-five cents in our currency, the price of a bow being two hundred clam-shell beads. Eagle feathers served a similar purpose among the Pueblo Indians. The Mandans employed corn measures of different dimensions, kept in the council lodge, while the Arikara employed a stone mortar.

Among the Tungus of Siberia the unit of exchange was a squirrel skin, a reindeer buck and a reindeer-skin tipi, or *chum,* being estimated at one hundred squirrel skins. As with all of the reindeer peoples of the Tungus, the value of a man's wealth is reckoned in reindeer, small furs, such as ermine skins, being used as the medium of exchange in small transactions.

In Burma, Yunnan, Shanland, Siam, Malay Archipelago, Borneo, and other parts of the Far East, glass jars and bottles serve as currency. The Chinese reported this kind of currency in use in Burma a thousand years ago. In Car Nicobar cocoanuts form the medium of exchange. Rice was employed in Burma, Kashmir, and in parts of China. Cloves were currency in the Moluccas and fish in parts of the Malay Archipelago. Salt served as currency in China, Burma, India, Africa. Cotton once was currency between Arakan and Burma. Chickens were currency in the Maldives, off the southwest coast of India, in the fourteenth century; pigs in Tibet; oxen in central Asia. The Lushais, on the Assam-Burma border, reckon in buffaloes, the Meriah Khonds of eastern India in men to be used for human sacrifice.

INTEREST

In New Britain a wealthy man borrowing from another does not pay interest, the transaction being looked on as a "kindness," yet on repayment of the debt the borrower gives the lender a little dinner. If, however, a native borrows shell money to give away at the funeral of a relation, he must pay fifty per cent, repaying fifteen strings for each ten strings of shell money borrowed. In other transactions the usual interest is twenty per cent, the borrower paying back six strings for each five borrowed. Rate of interest is fixed without reference to the time element.

In the Solomon Islands a rich man imposes upon a friend a loan which the latter is bound to accept, and to discharge with a double return—an interest of one hundred per cent. By virtue of this custom he can make rising men his debtors and so keep them down.

When a man cannot pay his debts, pressure is applied. All the men of the creditor's village come and sit, their wives with them, in the debtor's premises; the debtor must light a fire and cook food for them. If payment is not forthcoming they stay overnight, go home next morning, and, after a while, repeat the visit. The debtor's neighbors and friends take pity on him and help him with food and money until he is able to pay the debt. A man borrowing money from a friend to pay a debt asks him to "stand between" him and his creditor. A man who borrows money and lends it to another is said to "treat the lender unfairly."

If a man uses borrowed money to satisfy another creditor he is said to "divert the payment into another course." When a man borrows strings of shell money from another, he makes his creditor his debtor also by lending him fewer strings of his own money; this makes the transaction easier for the original borrower, who cannot so easily be dunned by his creditor. No security is given, but the transaction is conducted in public and so there is ample proof of the debt.

The potlatch, found on the Northwest Coast of North

America, in most fully developed form among the Kwakiutls, combines social rivalry with economic. It is associated with borrowing and payment with interest. For five blankets borrowed for the period of less than six months six must be returned; if the period of loan is six months, for five blankets seven must be returned; for a period of twelve months or longer, for five blankets borrowed ten must be returned. If a man has poor credit he may borrow blankets by pawning his name for a year. In that event his name must not be used during that time. For thirty blankets borrowed he must pay back a hundred in order to "redeem his name." The usual rate of interest is about twenty-five per cent, though it varies considerably. At the potlatch ceremony a man virtually is compelled to accept gifts of blankets, and is placed under obligation to return them at a high rate of interest. The Kwakiutls have public accountants, who are able to tell at any time the amount of property out on loan.

BANKING

Entrusting money to others gives rise to incipient banking among certain peoples in Oceania. In Samoa the heads of families are, in a sense, the bankers of the chief. His fine mats and other property are deposited with them, and they must be ready with a supply of fine mats, food, or other property, whenever he wishes to draw upon them. In New Britain a man's cowry-shell coil, which serves as money, is lodged with the strong man of the village. In time of war all rally round this strong man to protect him from enemies. A man who has deposited his coil can get a loan of money on it, a certain amount being charged for the loan independently of the size of the sum deposited. If the banker wants his debtor to pay him, the banker places a painted stick in front of the debtor's house, in effect declaring the bank closed, no loans to be made until the debtor pays. As a consequence of this move, the people interested in the bank importune the debtor and oblige him to discharge his debt.

EVOLUTION OF MONEY

Cattle formed the unit of exchange in Egypt, Greece, and Rome. When metal was substituted for cattle in Egypt the amount was represented in the form of a cow's head, to indicate its value as equal to one cow. Our word "pecuniary," derived from the Latin *pecus,* meaning "flock," the root word of the Latin *pecunia,* meaning "money," is record in our language of the early utilization of cattle as the unit of currency. The *soldi,* given to soldiers in later times in Rome as their pay, is derived, at least etymologically, from "cereal," while *stipendium* comes from "stips, fruit of the stalk," and *pendere,* "to weigh out."

In Britain in the Early Iron age iron bars were used as money. These were not unlike sword blades in shape and size, though they were of even thickness, square-edged, and unpointed, the edges hammered out at the handle end to form a kind of socket.

The metal coins of some peoples show that these have developed from other material, such as ornaments or useful articles. An interesting example is the so-called razor and knife money of the Chinese. These were originally good copper razors or knives. There was a gradual reduction of the blade until only the ring of the handle remained, giving rise to the present Chinese coin with a hole in the center. Similarly, the small axes and blades used in parts of Africa probably are the successors to usable axes and blades which preceded them. In early European civilization metal frequently was cast into bars which served as currency, as in Early Iron age Britain. The old Menander, the old Swedish, and the Morocco "bits" of the present day have been manufactured in this way. The Itacho, the oblong silver pieces of the Japanese, probably had a similar origin; they were current until the middle of the last century, then were superseded by circular coins like those used in European countries. Ingots of silver of various forms are still found in occasional use in Upper Burma and Siam, though they are giving place to the Indian rupee. Dealers smelted them into differently sized

bars, and when change was wanted a piece was lopped off. The word "shilling" may be derived from the Anglo-Saxon *scylan* ("to divide"), referring to its being cut or broken off, probably from a torque or armlet. Some of the money used in southeast Asia has taken in metal the shape of a fish-hook, a record of the time when fish-hooks passed as the coin of the realm, as they did among the Eskimos when they acquired them.

INFLUENCE OF MONEY

Among the natives of New Britain, money establishes personal rights to property, keeps the people frugal and industrious, and makes them commercial. Money facilitates exchange of property. Though others may protest, if the money in payment has actually changed hands, there is no redress; the payer will claim his property.

Money makes property flexible, transferable, fluid, for it establishes a common denominator of value as well as a convenient means of exchange.

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CHAPTER XV

FOODS

TYPES OF FOOD

PRIMITIVE ideas of what is fit to eat are wont to differ from our own. Food scorned by us the savage relishes. The Australian eats the moths which collect in the cavities of rocks on the mountains. Women and children eat the grubs of ants, digging them out of ant-hills, from gum trees, or, as in New Zealand, from decayed trees. Collins testifies to their "sweet and juicy flavor," though they have not yet become popular with the more fastidious European. The palolo worms which crawl out of the coral reefs of Samoa are eaten alive or baked, and are esteemed a great delicacy.

The African Bushman eats the larvæ of ants and locusts. Caterpillars, white worms, locusts, the males of white ants, the boa, the lizard, are found on the Thonga menu. The Atnanjas and the Yaos eat termites, roasting them over the fire in an earthen pot, "like coffee." In British Central Africa many have a liking for the half-digested grass found in the stomachs of slain antelopes or oxen. Among the Yanas the larvæ of yellow-jackets are a favorite article of food.

Dire necessity drives natives to unpalatable diet. Thus the Yguazas, an inland Texas tribe, subsisted principally on roots, many of them very bitter and requiring a prolonged roasting, as long as two days if we are to believe Cabeca de Vaca: "Occasionally they take deer, and at times take fish; but the quantity is so small and the famine so great, that they eat spiders and the eggs of ants, worms, lizards, salamanders, snakes, and vipers that kill whom they strike; and they eat earth and wood, and all that there is, the dung of deer, and

other things that I omit to mention; and I honestly believe that were there stones in that land they would eat them. They save the bones of the fish they consume, of snakes, and other animals, that they may afterward beat them together and eat the powder." [1] The Maidus of California, in addition to consuming every edible vegetable product, eat badgers, skunks, wildcats, mountain lions, practically all birds except the buzzard, yellow-jacket larvæ, grasshoppers, locusts, crickets, salmon bones, and deer vertebræ. The Takelma sometimes burned over the fields in order to secure the grasshoppers—a favorite food.

In cold climates fat and raw meat often are favorites, meat of any age or consistency being acceptable. The European inhabitants of the Faroe Islands live on coarse barley bread made into rolls without yeast, baked in the hot ashes of peat fires, and on "rast," a putrid compound of the flesh of fish, cetacea, and various mammals. The Nenenots count caribou fat among their chief delights, though they place a high value on the flesh of the beaver. They preserve the caribou fat in bags made of the skin of that animal, and produce it at feasts. Both men and women are inordinately fond of berries; during the season when they are to be had one rarely sees a Nenenot without a mouth stained the peculiar blue color which these berries impart.

The Nenenots consider the intercostal muscles of the deer choice food. The marrow is extracted from the long bones, and is the most highly prized portion of the animal. In seasons of plenty deer are slaughtered for the sake of the marrow alone. Like the Eskimos, they consider the unborn young of the reindeer a prime delicacy. The eggs of various species of birds are eagerly sought for; it matters little whether they are fresh or far advanced in incubation. The embryo bird, with the attached yolk of the egg, is swallowed with gusto. Excepting dried meat, the Nenenot seldom eats raw flesh.

The Eskimos, whose name means "Eaters of raw flesh," eat

[1] Cabeca de Vaca, Alvar N., *Relation,* New York, 1851.

every part of the reindeer, even the contents of the stomach. The blood is boiled, making a rich soup, which is esteemed a great delicacy. Sometimes the half-digested vegetable food from the stomach is mixed with blood before being boiled. The marrow is extracted from the bones, which are then broken into small pieces and the fat is boiled out of them. The contents of the paunch of the deer is a favorite dish. Liver, generally eaten raw, is considered a tidbit. If no other meat is to be had, the intestines are eaten. Greenland Eskimos esteem frozen rotten walrus flesh one of the greatest delicacies; Rasmussen declares it, "when you have grown accustomed to it, really a very pleasant change from all fresh meat." Of the fish he has unkind things to say: "They gave me boiled cod that had been left till it was rotten, and ancient train-oil, liquid from age, as a sauce to dip it in. Rotten meat I like, but rotten fish I have never been able to get used to. The meal was to me most repugnant." [1]

Labrador Eskimos, like their countrymen throughout the Arctic, are fond of a soup made of blood of seal or deer. A favorite dish is a combination of salmon spawn, blueberries, and seal fat. The cranberry and the blueberry are staple foods. If blueberries are scarce the less flavoured crowberry is eaten. Children eat the cloudberry green, in their eagerness for it, and adults are fond of the ripe berry. The cranberry is an important article of food, and is a good preservative. It is gathered before the fall of snow, and again in the spring when the snow has melted, for frost is said to improve its flavor.

Cartwright speaks of seeing among the Eskimos a bag whose contents were "a complete mixture of oil and corruption with an intolerable stench, and no people on earth, I think, except themselves, would have eaten the contents." How appetizing poor food becomes when liberally mixed with hunger sauce!

Among the Point Barrow Eskimos, at the other extremity of Arctic North America, a similar diet prevails. Though they seem to prefer fresh meat when available, meat which

[1] Knud Rasmussen, *The People of the Polar North.*

epicures would call rather "high" is eaten with relish. Fetal reindeer are greatly esteemed, and the entrails of fowls, considered a great delicacy, are carefully cooked as a separate dish. Point Barrow Eskimos do not eat the half-digested contents of the reindeer's stomach—a dainty which eastern Eskimos greatly treasure. Every fish, excepting two species of Lycodes, is eaten. In times of scarcity walrus hide is cooked and eaten. The epidermis of the whale is a great delicacy among all Eskimo tribes. They are very fond also of the tough skin or gum around the roots of the whalebone.

The fins of the shark, the bêche de mer, the cuttle-fish, the jellyfish, the scallop, are articles of Chinese diet, formerly important items of commerce, along with fish maws and birds' nests, none of which are greatly esteemed in the Occident.

The "birds' nest soup" of the Chinese is famous. The Siamese collect the nests of a species of swallow and send them to China, where they are used in the composition of this soup. At Canton and Hong-kong the nests sell for their weight in silver, or even more. They are found in rocky caves along the western coast of the Gulf of Siam and on the east coast of the Bay of Bengal. Collecting the nests is both difficult and dangerous. The bird whose nest is sought is found also in Java and in the Philippines; it gathers a glutinous weed from the coral rocks and carries it in its mouth or stomach to its nest, where it is used; hence the peculiar flavor which the Chinese prize so highly.

The locusts on which John the Baptist lived—if his food was the insect rather than the beans or pods of the carob tree—have been used as food at least since the time of Herodotus. The poorest people among the Bedawins eat them. They are roasted and eaten with butter, after the head, legs, and wings have been removed; or, dried and beaten into a powder, are used as a substitute for flour. In some cases they are roasted and kept in sacks with salt. Horses and camels are often fed on them. They are on sale in the markets of Bagdad, Medina, and Damascus. During the months of October and November the Andaman Islander eats the cicada.

ANIMALS NOT EATEN

In spite of a very cosmopolitan appetite, often the native is prejudiced against certain foods and will not eat them.

The Yoruba proverb, "If the stomach is not strong, do not eat cockroaches," suggests a discrimination in articles of food; another proverb, "When a Mohammedan is not pinched with hunger, he says, 'I never eat monkey'," suggests a perception upon their part of the extent to which diet is regulated by necessity.

Or superstitious motives dominate, as notably in the totemic tabu of certain foods. Many other motives intervene. The aborigine of New South Wales, for example, will not eat a snake unless he has killed it or seen it killed, for he believes that a snake, when wounded, in its pain bites itself and thus poisons its flesh.

Often mere caprice dominates. The Smith Sound Eskimos eat no shell-fish except those found inside the walrus; fish are not much sought for food; the hare is not eaten, though the bear and the fox are. The lynx is the only carnivorous animal which the Nenenots eat, using it only when other food is scarce; wolverines, wolves, and foxes are not eaten. Doubtless for superstitious reasons, they will not eat the flesh of the white whale, declaring it too fat; the Indians dwelling to the southeast of the Ungava district, however, find the fins and the tail very delectable. The Yakutats eat the blubber and flesh of the whale, though the other tribes of their stock regard these as unclean. There is considerable tribal divergence in the matter of acceptable and of forbidden food.

The Macusis, with seeming inconsistency, will not touch the eggs of fowl, though they consume turtle eggs with avidity and are fond of the eggs of the iguana lizard.

VEGETABLE FOODS

"Every one of the important plant foods was discovered and brought into cultivation by prehistoric man. Our by-gone progenitors must have been pretty busy old fellows, and just

as keen as their descendants. Apparently they pounded up and made flapjacks or stews of nearly everything that grows, and passed the word along whenever they found anything worth their while. The interesting outcome of all this experimenting is that man lives on grass, and thus proves he isn't much wiser than his ox or his ass when it comes to satisfying hunger." [1]

Throughout Oceania the yam is a favorite food. The Sakai and Negrito tribes of Malay eat many roots and tubers poisonous in the raw state, requiring careful preparation to neutralize their noxious properties. In Australia the seed of barley grass is eaten. The Todas have a much-prized food called patcherski, made from samai grain. The grain is roasted and pounded, to remove the husks, and is used in the preparation of a food eaten on ceremonial occasions. In preparing this ceremonial food the patcherski is placed in a basket and mixed, nowadays, with buttermilk and jaggery. Near the mouth of the Niger the natives make bread of a berry called by them tmberong (*Rhammus lotus*). The berries are exposed to the sun for some days and are pounded in a wooden mortar until the farinaceous part of the berry is separated from the seed. The meal is then mixed with a little water and made into cakes, which, dried in the sun, resemble in color and flavor the sweetest gingerbread. The seeds are afterward put into a vessel of water and shaken to separate them from the meal which adheres to them. The meal communicates a sweet and agreeable taste to the water and, with the addition of a little pounded millet, forms a pleasant gruel called foudi. During the months of February and March this is the common breakfast in many parts of Ludamar. The shea trees from which the Mandingos make butter grow in the woods. When land is cleared of trees the shea are left standing. The kernel of the fruit is dried in the sun. By boiling it in water a butter is obtained which has somewhat the appearance of an olive. The cocoanut supplies oil.

The Point Barrow Eskimos, deprived almost entirely of

[1] Edward M. East, *Mankind at the Crossroads*, p. 162.

FIG. XVII.—A MIWOK (CALIFORNIA) GRANARY FOR STORING ACORNS

This represents a pre-agricultural granary, for the California tribes were non-agricultural, though they used wild seeds and acorns. A granary of the type shown above was built out-of-doors. It was a yard or so in diameter, the base being a foot or two above the ground. In place of posts the limbs of trees were sometimes used for support. The sides were sticks and brush, and grass formed a lining. The materials were tied together where this was necessary.

vegetable food, sometimes eat the buds of the willow. In central California acorns form the main food staple, most of California being an area in which wild seeds are utilized as the basis of vegetable food. The eating of earth, a practice found in many areas, from Australia to America, may be due to the satisfaction which the particles give to the monotonously fed digestive system.

MEAL TIME

The picture of meal time given by Plato in the *Republic* suggests the simplicity of primitive life: "They will feed on barley meal and flour of wheat, baking and kneading them, making noble cakes and loaves; these they will serve up on a mat of reeds or on clean leaves, themselves reclining the while upon beds strewn with yew or myrtle."

But the suggested dignity is sometimes wanting in appearance when the meal is seen in progress. "With the forefinger one takes up the sauce," says a Yoruba proverb. Forks are not used—and, for that matter, were not known to any civilization until the last few hundred years, although the Chinese may have had chop-sticks for a much longer time. The food is ordinarily taken directly from the pot or kettle in which it has been cooked or prepared, each one helping himself without form or ceremony or waiting for an invitation.

Of the table manners of the Khirgiz, Huntington gives this description: "Each man grasped a bone, and with his knife and teeth ripped off huge chunks of meat or fat, and with a mighty sucking and smacking drew them into his mouth. The daintiest portions, the head and liver, were offered to the elders of the feast, who skillfully gouged out an eye and yanked out the tongue. When the edge of appetite had been appeased with two or three pounds of meat and a pound or two of fat, most of the guests took a drink of soup, and then, with idly hanging greasy hands and greedy eyes, watched while the epicure cracked and sucked a bone, and one or two of the more skillful carvers prepared a delicate hash. The fat tail, which is really delicious, a selected portion of the

liver, and a good supply of other fat and meat were most cleverly sliced into fine fragments and mixed with soup in the bottom of one of the bowls. When the mixture was ready, each man rolled up a handful and sucked it noisily into his widely distended mouth, or, as a mark of respect and affection, put it into the mouth of his neighbor. The meal was over in an incredibly short time—the last bones were cracked and thrown to the edge of the *kibitka* (house); bowls of soup, followed by kumiss, were again passed around; the big top-boots were oiled by cleaning the greasy hands upon them; the beards were stroked; and the main business of life was over." [1]

Of dishes the savage had few, yet in spite of the paucity of material available they sometimes secured several varieties of food. The Wishrams, for example, ate a mixture of dried fish and pieces of flesh mashed fine and kept in fish oil. From the heads of salmon they made a soup; from two roots, known locally as wild carrot and wild potato, plus dried fish, they made a stew. Among the Yorubas, a sauce composed of meat and vegetables, or of vegetables and oil, highly seasoned with red pepper, is a universal article of diet. Yams are prepared with sauce, either by simply boiling, or by boiling and pounding, with the addition of water, to the consistency of a dough.

Of the inordinate manner in which most primitive peoples eat when food is abundant there is ample testimony. It might be said of many tribes that life is a succession of feasts and fasts; there is superabundance or there is nothing at all. Im Thurn's account of a meal witnessed by him in Guiana would fit the spirit of the meal in most tribes: "Far into the night the Indians, sitting in a circle round the camp fires, continued to gorge their food; and at last, when weary of sitting up to eat, they threw themselves into their hammocks, over which they had suspended certain dainty morsels of meat so as to hang close by their mouths, that no time might be lost whenever they happened to wake. Their power of gorging is really wonderful; I once was able to calculate the amount consumed in thirty-six hours by ten men, and found it to be two

[1] Ellsworth Huntington, *The Pulse of Asia.*

hundred and fifty-two pounds of smoked fish, sixty-two pounds of fresh fish, a whole wild hog, and an indefinite quantity of cassava bread" [1]—an average daily consumption which does credit to any man.

There was little regularity about times of eating and no recognized meal time. Natives ate when they were hungry or could secure food. In times of plenty the Maoris had two meals a day, one about ten in the morning, the other about four in the afternoon; in days of scarcity only one meal a day was served. The natives of Dahomey have three repasts a day, but the hours of eating are not regulated and are subject to caprice and occupation. In the Yoruba country most of the laboring people take breakfast at an early hour around the cooking pots of the women who prepare food for sale. At noon they eat on the farms or where they happen to be, taking supper before retiring. In most parts of India the natives take two meals a day, one at noon and one at sunset.

SALT

In Central Africa salt is procured by pouring water over various burned grasses and plants. The water is allowed to evaporate, is boiled off, or is squeezed out. Salty earth is dug up and used as seasoning.

The Zuñis secured salt from inland lakes, for religious purposes taking it from the inner crater of an inactive volcano. To supply the salty flavor many tribes added sea water to their food. The Eastern Indians seldom or never used salt, though in many localities it is easily procured. Loskiel says the Iroquois made no use of salt on their meats, although salt was abundant, and Cartier states that the Indians of the Northeast did not use it. To these non-salt-using tribes may be added the Montagnais, the Menominis, and the Mandans. The Omahas and the Shawnees, however, were fond of it.

Salt appears to have formed no part of the diet of the Aryans. Considerable use of it was made in southeast Asia and in many parts of Oceania.

[1] Edward Im Thurn, *The Indians of British Guiana.*

HONEY

In most areas in which there was a supply of the honey of wild bees, the mellifluous fluid was procured. In Australia, when the natives find more honey than they can carry in a basket, they detach a portion of the inner bark of a gum tree and make it into a fibrous spongy mass with which they mop up the honey, each one taking a suck in turn, until the supply is exhausted. Sometimes they eat it from a bark trough, each using a piece of fibrous bark as a spoon or sponge.

The Todas drive the bees from the hive by building a fire under the tree, then securing the honey. The practice is referred to in their traditions and appears to have been in use for a long time. Honey forms an important article of diet for the Veddas.

Until after the arrival of Europeans the Iroquois were not acquainted with honey. Now when they find a hive they chop down the tree, leaving a little honey for good luck; if all is taken a man's game will be stolen by animals or he will meet with other misfortune. To clear the honey of dirt and leaves they strain it through a cotton bag in which it is hung to drain.

MILK

Most pastoral peoples do not use the milk of animals, but employ only the flesh as food. Some, however, are liberal users of milk. Among the Todas and the pastoral South African tribes, as among the Masais of East Africa, it occupies an important place in diet as well as in ceremonial life. Artificial souring of the milk is a feature common to the areas mentioned. The butter or *ghi* made by the Todas is clarified with rice or grain. Fresh milk is put into pots containing old milk. It is churned on the day after it is procured from the buffalo, the milk coagulating before the cream has risen in any quantity. There is no skimming, the "butter" consisting of both the fat and the casein of the milk, the "buttermilk" being whey.

The steppe tribes of the Russias use the milk of the mare in

making kumiss, and the Arabs use for food the milk of the camel. The command not to seethe the kid in its mother's milk indicates that the ancient Hebrews were familiar with the use of goat's milk.

COOKING

According to a Yoruba tradition: "The first man made an attempt to eat a raw yam, but pronounced it unfit for human food. Afterward one accidentally lying near his fire became roasted; and this was the first discovery of the important art of cooking." Perhaps this explanation, suggesting Lamb's story of roast pig, is as good as any which European theorists have offered.

In the West African region meat or fish is cooked in *jomba,* or "bundle." The flesh is cut into pieces and laid in layers with salt, pepper, some crushed oily nut, and a little water. These are tied up tightly in several thicknesses of fresh green plantain leaves and the bundle is placed on a bed of hot coals. The water in the bundle is converted into steam before the thick fleshy leaves are charred through. The steam, unable to escape, permeates the fibers of the meat, thoroughly cooking it without boiling or burning it. This is practically the method employed in Mexico at the present time in preparing tamales, the maize husk serving as a confining sheath in which the food is contained.

In Tasmania and Australia animals were cooked on heated stones, the skin being left on. They threw the animal upon the fire, and when it was half warmed through took out the entrails and rubbed the inside with the paunch. The flesh was then eaten. In New South Wales the natives throw the animal on the fire, or dig a hole in the ground, where heated stones serve as the fuel for the oven. When cooking turtle they sprinkle sand over the animal, much as we add pepper or other seasoning. The Papuasians cooked on heated stones, or in pots or shells. In many parts of Polynesia, during the breadfruit season the inhabitants of a district gather to prepare a quantity of *opio.* This generally is baked in a prodigious oven. A pit, twenty or thirty feet in circumference,

is dug; the bottom is filled with stones, logs of firewood are piled upon them, and the whole is covered with large stones. The wood is then lighted. The resulting fire is often so intense that it reduces the stones to liquefaction. When thoroughly heated the stones are removed to one side. Many hundred ripe breadfruit are then thrown in as they have been gathered from the trees, and are piled up in the center of the pit. A few leaves are spread upon them, the remaining hot stones being built up like an arch over the heap. The whole is covered to a depth of a foot or a foot and a half with leaves and earth. Here they are left for one or two days. A hole is then dug on one side, and the persons to whom it belongs take out what they want, leaving the remainder to be drawn on at a later date. Breadfruit baked in this manner will keep several weeks after the oven is opened. The Maoris heated stones, poured water on them to produce steam, placed the food on the stones, and covered the whole with earth. When done with more care, ashes were placed around the heated stones, for which a hole had been dug, green leaves were laid on the stones, and the food was placed on these leaves. The earth oven was then covered with old mats soaked in water and soil, to confine the steam. In New Caledonia, cooking is done in earthenware pots, manufactured by the women. In Borneo, by the Negritoes of the Philippines, and by the Sakais, bamboo joints are used as cooking vessels.

In North America earth ovens are not uncommon and roasting of fish upon spits is found from the Plains area to the Northwest Coast. The Assiniboine and other Plains tribes cook meat in kettles of hide, the water being heated by stones. The Pueblos cook in similar manner, employing watertight baskets and heated stones.

Birch bark served a similar purpose among the Woodland Indians, the birch-bark vessels sometimes being placed directly over the fire. A protecting surface of air forms under the vessel and at the same time the heat is transmitted to the contained water sufficiently rapidly to insure boiling.

The West Greenland Eskimos wrap birds in moss fresh-gathered and dripping with water, then boil or roast them on

flat stones. The resulting smoke adds a pleasant flavor. The Point Barrow Eskimos skin fowls and then boil them. Generally the food is cooked, with the exception of whale skin and whale gum, these usually being eaten raw. Meat of all kinds is generally boiled over a fire of driftwood in an abundance of water, the hot broth being drunk before the meat is eaten. Fish are boiled or are eaten raw.

The Mayas wrap their "pies" in leaves of the banana tree and bake them underground between hot stones—possibly the origin of the tamale. In British Guiana, meal and game fish are thrown into an earthen vessel, called a "bucket-pot," manufactured by the Caribs, and are stewed with cassareep, the inspissated juice of the bitter cassava, ripe peppers being added to give a pungent flavor. Generally cassava bread, dipped into the liquor, is eaten with it. The groo-groo worms, which breed in the trunks of decayed trees, are esteemed a great delicacy and are cooked according to the following recipe, "Snip off the heads, fix the bodies on small wooden skewers, and do them on the gridiron over the hot embers to a delicate brown. Dust them with salt and pepper and eat them from a skewer." A favorite dish is obtained by splitting open the worms and baking them with boiled rice. They answer in place of butter to the rice and give it a delicious flavor.

FOOD CONDITIONS

Of necessity, food conditions vary considerably from area to area, and from clime to clime; where industrial life is little developed, food is largely a matter of environmental conditions.

In British Guiana, for example, the crops of the Indians are almost limited to cassava, sweet potatoes and pumpkins. These, with pepper, supply practically all their wants. At times existence is made precarious by uncontrollable inundations. In the swampy country about the mouth of the Orinoco, during the season of heavy rains, when a large tract is inundated, the Warows construct dwellings in the tops of the forest trees; frequently they are forced to subsist entirely on

the fruit of the eta and other palms. Along the Atlantic coast south of Labrador, game was abundant in the woods and fish in the streams. Further north, the environment was not so favorable and afforded less variety of game and fish.

For the Montagnais and Nenenots, deer were the principal supply of food. Considerable havoc was wrought among the latter by starvation, which affected whole villages. The life of the Nenenots in normal times is a constant struggle to obtain food and raiment for both of which they are dependent on deer.

The West Greenland Eskimos have meat in abundance, though food is scarcer on the east coast, where the failure of the fish supply has been frequent and famine has ensued. The Central Eskimos sometimes are reduced to such straits that they must eat their dogs, or even kill a member of the village. To the Point Barrow Eskimos the reindeer is an important source of food. The Nez Percés and Spokeins had no comfortable subsistence, and the poverty of the Shoshones is a matter of record. Parker believed them "probably the most destitute of the necessaries of life of any Indians west of the mountains. They are often called Snakes and Root Diggers, from being driven to these resorts to sustain life." Throughout the Plains area life was dependent on the buffalo, and as a result of failure in the food supply, suffering was frequent, especially in winter.

PRESERVATION OF FOOD

In general, savages are improvident. They hoard neither treasures nor food. As was said of the Indians in the northeastern part of the United States, "If they have any particular present want to supply, they will do what is sufficient to satisfy it and make no further effort until urged by a returning necessity." Though countless instances could be given in corroboration of this statement, one will suffice: Although, without the deer, the very existence of the Nenenots would be imperiled, their merciless and thoughtless slaughter leaves hundreds of carcasses unutilized. In traveling a distance of about eight miles through the Nenenot country Turner counted

one hundred and seventy-three carcasses of deer on one side of the river, and upon arriving at the camps of the Indians saw incredible piles of meat and skins going to waste.

Yet methods of preserving food are not unknown, even among savages of crude industrial life. The moths collected for food at Dugong Mountain, in New South Wales, are smoked to insure preservation for a long period. Polynesians kept breadfruit for many months by fermentation and subsequent earth burial. The Maoris preserved roasted parrots by storing them in calabashes in the birds' own grease. In some cases the care of food was considerable. In an Iroquois village was a general surplus store which could be drawn upon in case of need. The Iroquois used the following methods to preserve food: Green corn was shaved off the cob, baked over a fire in pans or earthen dishes, and dried in the sun. Red corn was picked when green, the ears set up on end in a row and roasted before a long fire. They were then shelled and dried in the sun. The parched grains, pounded into flour and mixed with maple sugar, formed the main food of warriors on their expeditions, when hunting and fishing were impossible. Green corn was boiled in the husk, then parched, shelled, and dried in the sun. The product thus secured had an especial value and was kept for the making of sagamite (maize soup) on extraordinary occasions. When dry enough the corn was shelled and put away for future use, that which was intended for seed being hung up in the dwelling. Other grain was harvested when ripe, and the ears were tied in bunches and hung up to dry. Fish and meat were smoked and stored. Raspberries, huckleberries, mulberries, strawberries, and nuts of various kinds were dried and stored. Animal and vegetable oils were preserved in lumps or in little round birch-bark boxes. These supplies were kept in or near the house or were buried in caches not far away. Corn was packed in bark barrels and placed on a high scaffolding inside the house, safe from moisture, or in the garrets or vestibules of the houses. Squash and other vegetables were buried in bark-lined pits four to five feet deep, secure from frost. Smoked meat and fish were made up into bundles and wrapped in bark or packed

in bark cases, hung up in the dwelling or buried under the floor near the fireplace. Cured meat was put into pits lined with deer skins.

The Nenenots smoke deer meat, which, when well dried, they put away for future use. The Greenland Eskimos stack seals in piles and cache them for winter use. The cache, an elevated or a subterranean inclosure for storing dried or frozen meat, is known practically through the Eskimo area. The Central Eskimos have storerooms for keeping spare meat and skins.

Pemmican was preserved in the reindeer and caribou area, reaching its perfection in the bison area. In making pemmican, the dried meat of buffalo is pounded fine with stone hammers and packed in bags, then sealed with melted fat. A special variety of pemmican was prepared by pulverizing wild cherries, pits and all, and mixing them with the pounded meat. This is known as berry pemmican. In eastern Canada and in New England it was made of deer or moose meat. When properly protected, pemmican keeps for many months. Being compact and easily transported, it forms a very valuable food. It was adopted by the earliest Canadian and Arctic explorers, and remains the chief dependence of travelers in the Far North.

Pemmican is a good example of an ingenious process by which raw food is converted into more serviceable and conservable forms. Its chief advantage is durability and lightness, the latter quality making it easy to transport.

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CHAPTER XVI

DRINKING, SMOKING, CHEWING

DRINKING

THE statement of Worsaae that in the Later Bronze age the Scandinavians doubtless raised barley for the brewing of beer, is an inference for which there is considerable justification. Pytheas reports the brewing of beer in the ancient Britain of his day, and the making of meads or beers among the Germanic tribes is as old as our records of them. The ancient civilizations had their beverages, many of them alcoholic. The Romans made verses and songs in praise of and under the stimulus of the fermented juice of the grape; the ancient Greek spoke of the ambrosia and the nectar of the gods, drinks fit for celestial creatures; the Hindu had his *saoma* and the Parsi his *thaoma,* fit for the gods; the ancient Egyptians made a beer from barley.

Among the Iroquois blackberry and thimbleberry juice, sweetened with maple sugar, is used both for home consumption and in the ceremonies. A corn coffee is made from whole ears of dried corn, which are placed on live coals and turned carefully until they are roasted, being then put into a kettle of water and boiled. Sugar is added, and milk or buttermilk. Sunflower seeds were roasted, ground, sifted, and boiling water poured over them, making a beverage said to have the flavor of coffee. Wild plums were cut along one side, the stones removed, and the fruit dried on boards or in evaporating baskets in the sun. Boiling water poured over these made the beverage. A drink was made from sweet juice extracted from the corn stalk. Chestnuts were roasted and a beverage made of them, "nearly resembling coffee in color and taste, but of a laxative nature." Juice extracted from hickory nuts formed the basis of a beverage. The juice of the maple and

that of the birch formed the contents of other drinks. Maple sap may have been fermented and used as an intoxicant, though its employment in this manner was not common. It sometimes turned to a vinegar and was consumed in this form. Infusions of the leaves, twigs, bark, or flowers of certain plants were employed. Hemlock leaves were steeped, sweetened with maple sugar, and used in corn bread or at meals. Similarly, the twigs of the black or those of the silver birch were steeped. Sassafras was widely used, tea being made from its roots. Spice-wood, wintergreen, yarrow, witch-hazel, red raspberry, sumac-seed clusters, monarda, horse-mint (for Oswega tea), were used in the making of beverages. The Iroquois made no fermented drink from maize, though the Zuñis made a non-intoxicating drink from it, nor from the wild grape, though the Virginia tribes are said to have made wine, "and for want of casks to keep it, all the year after they drink water, but it's sodden with ginger in it and black cinnamon, and sometimes sassafras, and divers other wholesome and medicinal herbs and trees."

Most of the northeastern Algonkins made a tea by boiling boughs of spruce. The Nenenot made an intoxicating drink by boiling tobacco in molasses, the effect of the drink being to reduce the victim to a state of semi-idiocy, which lasted for several days. This virtue, of course, they acquired subsequently to the coming of the whites.

The Mayas used a liquor, "balche," made by soaking the bark of the cactus tree in a mixture of honey and water. From the yucca an intoxicating drink was made, used by many of the tribes in and to the north of Mexico. A warm drink common in Mexico is etole, made of ground corn boiled in water. The drinking of pulque is now the prevailing vice in Mexico. It is one of the biggest commodities carried on Mexican railroads, and the most ubiquitous beverage. It is made from the fermented sap of the maguey, the false or American aloe, and is obtained by tapping the flowering stalk of the aloe. The sap can be drawn off three times a day for several months, one plant yielding several hogsheads. To add to the intoxicating effects various roots are used with it. In

appearance it resembles milk and water or soapsuds, but in taste and smell is "like rotten eggs." In 1890, 75,000 tons of pulque were carried on the main line of the Mexican railroad —twice as much as the weight of any other commodity. The ancient Mexicans, adept in the production of fermented liquors, handed on to modern Mexico a heritage of impoverishing drink.

The natives of the Caribbean islands made an excellent beverage from the fruit of the mahogany tree as well as from the pineapple.

The natives of Guiana are very fond of piwarrie, a liquor comparatively innocent in its effects if taken in mild quantities, but inducing stupefaction if a considerable quantity is consumed. In manufacturing it they employ thin cakes of the baked meal made out of the grated root of the bitter cassava. The cakes are roasted until they become dark brown. They are then chewed by the women and thrown into an old corial (canoe), or other receptacle. Water is added and the mixture ferments. By the use of cassava, maize, and sweet potatoes, they make also a slightly alcoholic drink, called casiri. This is described as not unpleasant, with a flavor between that of sour wine and thin claret.

The peoples of the Torres Straits have no native intoxicants nor fermented liquors, and a similar statement applies to the Todas. In Polynesia the employment of kava, made from the roots of a native plant, was universal, and probably passed from Polynesia to adjoining regions—Fiji, the New Hebrides, the Banks Islands. It is a mild intoxicant.

The Indonesians, like the Ainus, make a beer from fermented rice. The latter, as well as the Chinese who also use it, probably acquired the custom from the Japanese, who make it out of the best rice grains.

The Igorots ferment the sugar cane. From rice beer the Kacharis, of Assam, distill a still stronger beverage, phatika, a "raw fiery spirit, somewhat resembling in taste the crudest possible whisky." Distillation is a common practice in the East. The Korean distills spirits from rice or millet, the color varying from that of beer to that of pale sherry. The Chinese

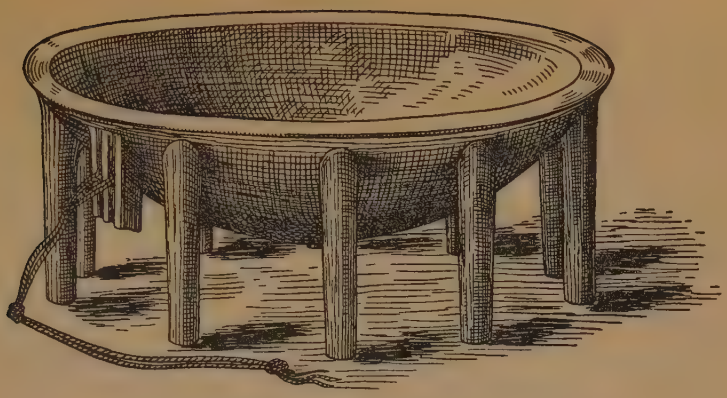

FIG. XVIII.—A KAVA BOWL FROM SAMOA.

Bowls of this type are used very generally in Polynesia at festive gatherings. Kava is a stimulant and a mild intoxicant.

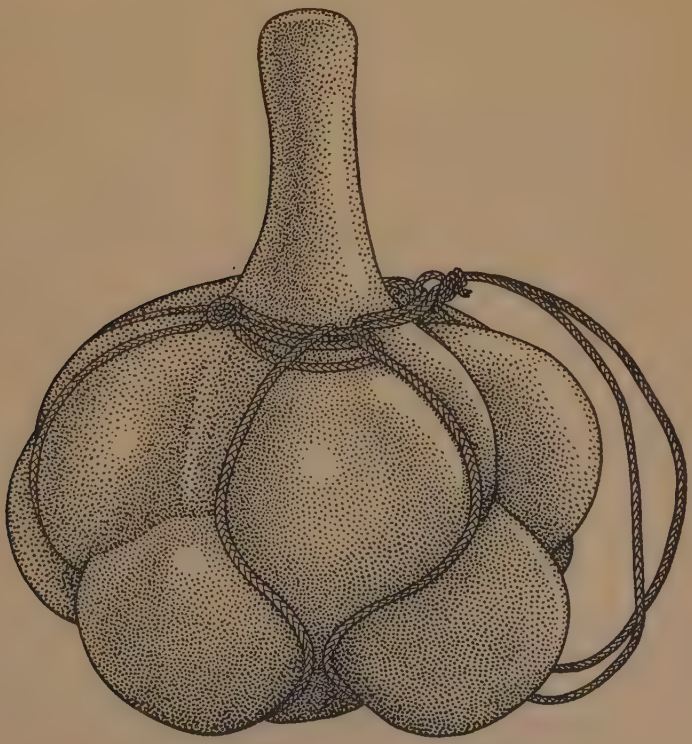

FIG. XIX.—A HAWAIIAN GOURD WATER BOTTLE.

distill spirits from millet and maize, but chiefly from rice. In Sumatra from rice beer is distilled a spirit much used in South India also; arrack, distilled from toddy, or rice beer, is drunk in India by the lower classes. It is the sura of the ancient Hindus. The Malagasys, and various other peoples, distill spirits from the juice of the sugar cane, making a primitive form of rum.

African negroes are much given to fermented drinks. The Kafirs make various kinds of beers. From the acacia tree the natives of Dahomey obtain a wine which they call the "wine of Boudou." A not unpleasant drink is their pitto, made of maize or millet. The beer of Dahomey is made from rice or from maize, the former being more "delicate." The Pegan negroes used mead and beer—both to excess. In Angola and the Gaboon district palm wine is given the preference; it is much used in Zanzibar. The Bakongos have five varieties of palm wine as well as the beer which they make from maize and manioc. The wine is usually non-intoxicating, but becomes intoxicating if kept for a few days. The tribes of British Central Africa brew beer in great quantities from various grains. In West Africa palm-wine is the universal drink, being used over practically all that continent as well as in Madagascar. It is the chief drink in most of the East Indian islands, in the Celebes, especially in the Moluccas, and is used to a considerable extent in Java, Sumatra, Malaysia, and India. Distillation is rare in Africa, though in British Central Africa spirits were distilled from a mixture of beer and banana, and also palm juice, by means of a pot and gun barrel—more than one evidence of European contact.

The favorite drink of the Russian peasantry is kumiss, made from fermented mare's milk, the only instance of a fermented liquor made from animal products. It is employed extensively by the Yokuts and the Altaians in their religious and semi-religious festivals. The Russian vodka is distilled from rye, an inferior grade being made from potatoes.

Tea has been used from time immemorial, its home being China, where it was raised at least five thousand years ago, and whence it spread first to surrounding areas, particularly

to Japan, Russia, India, and eventually over the entire world. Tradition ascribes its innovation to the Emperor Chinnung, 2737 B.C., who is credited with being the father of all agricultural and medical knowledge. It possibly is referred to in the writings of Confucius, prior to 550 B.C. One tradition ascribes the introduction of tea in China to a Buddhist ascetic of the sixth century A.D., who is said to have brought it from India; but we know from Chinese writings that tea was in general use in China in the sixth century, and that by the eighth century its use had become common enough to justify levying a tax on its consumption. From Arab sources we know of its use in China in the middle of the ninth century. During the ninth century the knowledge of tea was carried from China to Japan by a priest bearing the name of Miyoye. Miyoye planted it first in the south island, Kiushiu, whence the cultivation of the tea plant extended northward as far as the thirtieth degree of latitude.

The methods of preparation differ in various regions. In Tibet "brick" tea is pounded in a mortar, then placed in a kettle of hot water and boiled for about five minutes. It is then poured through a small wicker-work strainer into a long wooden cylinder or tea churn provided with a piston. A piece of butter and some parched barley are now added, and the whole is vigorously churned for a minute or two, after which it is poured into a teapot of red earthenware or tinned copper. Each person produces from the bosom of his gown a little wooden bowl, lined or otherwise ornamented with silver. A little tea is sprinkled as a libation and the cups are filled. Taking with his fingers a lump of butter from a bladder or wooden butter-box, the drinker lets it melt in his bowl, drinking some of the tea, and blowing the butter to one side. When only a little tea is left in the bottom of the bowl, a handful of barley meal is added and the various ingredients are worked with the fingers into a lump of brown dough which is swallowed and washed down with a fresh draught. The Tibetans take their meals irregularly, and at frequent intervals during the day tea is drunk, in the manner described.

In Ladakh, the habitable portion of the upper Indus valley,

tea leaves are steeped half an hour or more with milk, butter, salt, and soda, while in the richer houses it is improved by being churned violently in a slender greasy black churn, the rancid butter being mixed well into the compound before it is poured into the drinking bowls.

Coffee originated in Abyssinia. It was introduced into Arabia in the fifteenth century, and into Turkey in the following century. By the seventeenth century it was in use in England and in France, the plant being introduced to the New World in the eighteenth century. It is perhaps significant that the great regions of the Old World in which tea and coffee are produced are regions in which intoxicants were not used until introduced by Europeans.

The cacao tree, from whose products cocoa and chocolate are secured, is native to Central and South America. It was cultivated by the ancient Mexicans, from whom the Spaniards introduced these commodities into Europe. The Mexicans prepared cocoa by mashing the cacao seed into a paste, using maize as an ingredient. They diluted it with hot water, churned it into a thick broth, and drank it only when cold, the Spaniards introducing the practice of drinking it hot. Vanilla was added to improve the flavor.

Cider, made from the juice of crushed fruits, is an old drink. The ancient Irish made from the wild, or crab, apple a cider called nenadmim; apple trees to provide this drink, planted in hedge-rows, were much prized. A drink by the same name was made from the "woodberry," probably the same as the liquor later known as "bogberry wine." The Norsemen, like the modern Icelander, made a similar drink. In Carinthia, in the German Alps, a berry wine, an acid drink, still is made; but the "heather beer" which the Danes are supposed to have made from the common heather is a myth, the only way in which heather could be used for making beer being to use it as a substitute for hops; of this use there is no evidence. The prevalence of cider as the universal beverage in Brittany and in Normandy possibly is to be explained by the fact that this is the region of continental Europe having the largest element of Celtic population. Cider is the per-

sistent early Celtic drink surviving in competition with the beers and wines of which the Germans always have been fond.

The tendency in the development of stimulants has been for the drinks to thin—the thick chocolate paste becomes refined, the thick tea paste is thinned out, the thick coffee remains only in the Mocha brand. Beers have been clarified and wines have gone from muddy mixtures to sparkling beverages. The sweet flavor has been strained out and a bitter accent introduced, while dryness is increasingly sought. Thick sweet drinks are characteristic of barbarism and medievalism.

TOBACCO

Of the substances used for smoking or for chewing, tobacco has been more widely employed than any other plant. The name probably comes from the name of a Y-shaped instrument used by the natives of San Domingo. The prongs were inserted in the nostrils, and the end of the instrument held over the fumes of tobacco, which were inhaled. According to Benzoni (1565), however, "tobacco" was the Mexican name of the plant.

Tobacco was employed practically throughout the Americas. Along the northwest coast, down into California, tobacco-chewing was common, as well as in a strip of South America east of the coca-chewing district, the latter forming a strip along the western coast of South America, including the peninsula of Panama. In the Rocky Mountain region, from Canada to Panama, the tubular pipe and cigarette were used, while in the remainder of the United States and in southern Canada the elbow pipe was employed, as also in the southeastern half of South America, with the exception of the southernmost portions, where neither tobacco nor coca was used. The cigar was used in Washington, Oregon, and California, as also in the northern half of South America, except in the strip along the west coast and in the eastern section of central eastern South America.

Throughout a large portion of North America the natives mingled the powdered bark of bushes or of trees with tobacco, thus producing a mild mixture.

Inhaling tobacco smoke was very common. With the Eskimos it was a universal habit. Even in the northern climes tobacco is used by the Indians. The Nenenots, for example, have pipes and carry tobacco, along with other articles needed for the journey, in the so-called "fire bag." Both men and women when traveling smoke and use snuff a great deal. The sediment left in the bottom of pipes they chew, enjoying the strong flavor of the oil. They are inordinately fond of tobacco, whether for smoking, chewing, or snuff. The last named, however, is used only by aged individuals, in particular by the women, "whose countenances show the effect in a manner quite disgusting." Snuff is freely taken by Labrador Eskimo women. A small horn or ivory spoon carries it to the nostril. The taking of snuff is fairly well correlated with chewing. It is found in the areas in which tobacco or coca was chewed, extending over the Amazon country and to the West Indies. Usually snuff powder was made from the *Acacia niopo* berry.

In North America the use of tobacco in a ceremonial or semi-religious way was very common. Among the Takelmas a whiff of tobacco smoke was blown both before and after the recitation of a charm, there being ascribed to it a magical power to bring about the fulfillment of the prayer. Its use in the Plains area in ceremonial rites and in offerings was common.

Smoking was practiced in other aboriginal regions outside of America. Smoking with bamboo pipes was common in the Torres Straits. The Papuans of New Guinea, prior to the coming of Europeans, grew a native tobacco, though this was not true of the Melanesians of New Guinea, who were introduced to tobacco by Europeans. The more easterly peoples of the Nagas smoked tobacco in pipes resembling those of the Shans. To the Eskimos pipes and tobacco came from Siberia, after Europeans had adopted the use of tobacco from America.

In South America, where coca was chewed, the native mixed the dried leaves with lime and other alkalies. In the area contiguous with the coca-chewing area, tobacco is chewed, as

also on the northwest coast of North America. Tobacco which is chewed is mixed with pulverized shells or with ashes, ground fine in mortars, suggesting influence from the coca-chewing area.

The other great area of chewing is Melanesia and southeastern Asia. Here betel-nut chewing is common. It is universal in Indonesia, though not so common among the Negrito tribes. The Sinhalese have a special apparatus for betel-chewing. The Papuans of New Guinea do not chew betel to any considerable extent, though in Melanesian New Guinea betel-chewing is common.

In every Yoruba town snuff is ground. The tobacco is of poor quality and is ground with carbonate of soda, procured from the desert, to give it pungency. A *Description of the Coast of Guinea,* written in 1705, speaks of the extent to which "Turkish" pipes have come into use: "Some of them have pipes made of Reeds, which are about six foot long; to the end of which is fixed a Stone or Earthen Bowl, so large that they cram in two or three handfuls of Tobacco; which Pipe thus filled they without ceasing can easily smoke out; and they are not put to hold their Pipe, for being so long it rests on the Ground. All the In-land Negroes take this Tobacco, but those who live amongst us and daily converse with the Europeans, have Portuguese or rather Brazil Tobacco." By the middle of the nineteenth century the pipe was an institution in Dahomey. Clay pipes from Europe are sold there, and iron pipes are made. The usual bowl is of Agbome manufacture, and is one of the many monopolies of the royal wives. It is of reddish or whitish-yellow earth, usually half baked and very brittle.

Tobacco spread with marvelous rapidity throughout Europe and wherever Europeans carried it, and this despite attempts to prevent its adoption. In Russia smokers were punished by having a pipe stem passed through the cartilage of the nose for the first offense, and by being flogged to death for a second. Sultan Amrath IV ordered that all smokers be strangled. In Switzerland official announcement was made that the use of tobacco was one of the sins forbidden by the

Ten Commandments. The popes issued edicts against it; Urban VII decreed excommunication of all who should use tobacco. King James wrote the famous *Counterblasts Against Tobacco,* and other publications condemned the use of the weed imported by Sir Walter Raleigh, through whose example the courtiers of Elizabeth's day became addicted to the habit of smoking. It was an epoch day in the history of tobacco when, in 1558, Francisco Fernandes, a physician who had been sent by Philip II of Spain to investigate the products of Mexico, brought to Europe the tobacco plant. Jean Nicot, whence *Nicotiana,* the scientific name of the plant, the French ambassador to Portugal, sent some of the seeds of the plant from that peninsula to the French queen, Catherine de' Medici. The plant at first was supposed to possess almost miraculous healing powers, being designated *herba panacea, herba santa, sana sancta Indorum.* "Divine tobacco," Spenser calls it, and William Lilly refers to it as "our holy herb nicotian." Though the plant came to Europe through Spain, the English introduced the custom of smoking. Ralph Lane from "Virginia" and Sir Francis Drake brought with them in 1586, from the first American possession of the English crown, the implements and materials of tobacco-smoking, handing these over to Sir Walter Raleigh. Lane is credited with being the first European smoker, though undoubtedly Raleigh introduced smoking to court circles and made it popular—he even "tooke a pipe of tobacco a little before he went to the scaffolde," his last testimony to the solace of the fumes of nicotine.

PERFUMES

Perfumes play no important part in primitive life. The Esthonians regarded asafetida as a favorite perfume, suggesting hardier olfactory sensitiveness than we are used to. Indeed, generally, savages seem to be insensitive to odors which are very unpleasant to us, although they are by no means deficient in olfactory sense, but rather have developed this faculty to a higher acuteness than civilized peoples can claim. Yet a preference for mild and pleasant smells is not unknown. The northeastern Indians, for example, generally

put into their smaller baskets for house use pieces of "sweet grass," a grass whose perfume is very persistent and mildly pervasive. Colognes and body perfumes are practically unknown to primitive peoples.

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Part Four

SCIENCE, MAGIC, AND RELIGION

"There is a continuity in the history of the human intellect."—CHARLES SINGER.

"Without differing essentially from the rest of the animals, man was more capable than any others of observing and comparing."—ANATOLE FRANCE.

Science consists of observation and interpretation of natural phenomena. In its present highly organized state science is a thing of yesterday and to-day. But it has grown out of the science of preceding decades, which in turn is based upon that of preceding centuries, many modern scientific concepts being derived from the ancient Greeks. There the story ends so far as we can follow it historically, with a few indications of the indebtedness of the Greeks to the Mediterranean cultures about them. We cannot link up this story with the story of the development of science in primitive culture, for there are many unbridged chasms too wide to vault with any pole of hypothesis. We must take the science of primitive man as it is and allow it to tell its own story. This story makes clear, however, that frequently, in distant and diverse cultures, there is a like response to similar phenomena, and a like reflection upon them.

Most of the inductions of the savage will seem unreal or highly fanciful to us unless we divest ourselves of the scientific ideas which are now the commonplace of every civilized person. They would not have seemed so strange to our ancestors in the Middle Ages, and many of them would have seemed sensible to our remoter ancestors in the times of Julius Cæsar.

How would we think of these matters if we had the mental equipment of the savage and the mental orientation of his culture? Undoubtedly we would think of them much as he does, and certainly with no better logic. Viewed in this light, we shall see that there is as much reasonableness as unreasonableness in his natural science.

CHAPTER XVII

MAN AND THE ANIMALS

In the early stages of human development man's most immediate, fascinating and remunerative occupation was the pursuit of animals. No doubt the hunting of animals stimulated many inventions and suggested many devices for the killing or capture of prey, inventions and devices which paved the way to further achievements. Upon the successful hunter is bestowed honor and esteem not vouchsafed the mediocre. Among the Quissamas of Africa the hunter who has taken an elephant is decorated during tribal dances with the head of a young elephant. This mark of honor is conferred only on a man who has been a successful elephant-hunter and has presented the chief with a large quantity of ivory. The utilization of parts of animals as ornaments is common. In Dahomey the tail of a species of rat is used as the symbol of royalty, the king holding it to his lips when he walks abroad. By the Osages the scalp of a wolf, bird, or other animal was substituted for a human scalp in the funeral ceremonies. In the Platte River district, as in many Indian tribes, the claws of the bear and the tail of the white wolf were highly esteemed ornaments. Portions of the animal serve as a record of the killing as well as answer the demands of vanity. When a Nenenot kills one of the larger and fiercer beasts he reserves a portion of the skin or other part of the body as a memento of the deed. These mementoes are kept to show the prowess of the hunter, serving also as a token of the wealth procured by bartering the pelt of the animal to the trader. Wolf, bear, and wolverine are considered worthy of remembrance, a claw or the tip of the ear of wolf or wolverine serving as souvenir.

Animal *motifs* are among the most frequent in art, being found among practically all peoples. The reason for the use of animal forms is not always merely esthetic interest.

Among the Tlinkits the figure of an animal which had been seen and had brought good luck was painted on the front of the house and afforded protection. The Zuñi prayer-meal bowls contain representations of tadpoles, dragon-flies, frogs, and toads. The tadpole, which frequents the pools in spring, is the symbol of spring rain; the dragon-fly, which hovers over the pools in summer, typifies summer rains; the frog, which later matures in the pools, represents the rains of a later season. To symbolize the beneficence of summer the sacred butterfly sometimes alternates with or displaces the dragon-fly; butter-flies and migratory birds bring the warm season from the "Land of Everlasting Summer." These appropriate animal forms are efficacious in the magical ceremonies controlling the seasons. Polynesia is rich in ornamental animal forms. The frigate-bird *motif* is found frequently in Tonga, the zigzag ornament used there being derived from representations of the heads of birds, snakes, or alligators—so, at least, the anthropologist believes.

In many ways animals furnish amusements to man. The Eskimos have a game called "images of birds," in which they employ a set of fifteen figures, representing birds, men, and women. In many regions animals do the performing, men being merely amused observers.

Frequently the attitude toward animals and the beliefs regarding them are reflected in language. As a rule the same endings distinguish sex in the case of animals as in the case of human beings. Often there are distinct words for the various cries of animals. The Maoris have three words for the cries of the parrot: one for the ordinary harsh scream, one for the sound made when apparently quarreling, and one for the cry of alarm.

Control of animals by magic is common. It is exemplified by the Zuñis, Eskimos, and Australians. When the Eskimos can get no seal it is because they are kept back by Sedna; the medicine-man must disengage them from Sedna by inducing her to release them so that they may come to the surface of the world. In Central Australia the supply of game is dependent upon the performance of magical ceremonies, the

Intichiuma, designed to ensure the return of game for the ensuing season. Probably in all tribes some sort of magical control of animals is attempted. Usually this is directed toward securing them in hunting or in fishing, but the Samoans exemplify another motive in the night dance, which they hold after the "house-warming" or "oven consecration" ceremony, performed for the purpose of "treading down the beetles." Also, animals have magical powers; again, they are regarded as especially liable to suffer from occult influences. Especial care must be taken in the case of domesticated animals to prevent contact with substances which will injure them, and caution must be taken not to mistreat them nor their products. The Masai believe that the boiling of milk will cause cows to go dry, and any one caught doing so is heavily fined. The Biblical injunction not to seethe the kid in its mother's milk may be based on some similar idea of magical influence. The Obo, of Central Africa, declare that if they do not wash their hands properly before milking, the cow will lose her milk. Throughout Southern Africa witchcraft has especially dire effects upon cattle, their milk and butter. Among the Todas if the buffaloes are lost, or are attacked by wild beasts, a charm is pronounced to protect them; if they suffer from the evil effects of ceremonial performances, incantations are said and salt is administered. Nail-parings are buried, so that the buffalo may not eat them; they are poisonous to the animals, which would die or become ill should they find them while grazing. Hair removed from the head is hidden in bushes or in hollows in the rocks, so that the crows may not secure it; should a crow obtain any of the hair first cut from a child's head, the child would be afflicted with palsy. Magical power resides in animals or in portions of animals. In Madagascar, when two or more persons have agreed to enter the bond of fraternity, a fowl is procured, its head is cut nearly off, and the bird continues bleeding in this state during the ceremony which follows. The parties then pronounce a long conditional imprecation and mutual vow over the blood, saying, among other things: "O this miserable fowl weltering in its blood! Thy liver do we eat, thy liver do we eat; and should either of

us retract from the terms of this oath, let him instantly become a fool, let him instantly become blind, let this covenant prove a curse to him."

The animal world as it appears to savages is far other than it appears to us, even when we deal with the same geographical areas. There are ethnographical animal areas as well as geographical ones. Many animals are present in the culture of the people which our zoölogists would not be able to classify, nor even to find; the attributes which the animals possess are, to civilized peoples, often cause for surprise.

The Indians of the Woodland area refer to a huge bird which is unknown to the white man. The Altaian shaman invokes the presence of Merkyut, the huge bird of heaven, in the incantation:

> Celestial birds, the five Merkyuts!
> You with mighty brazen claws,
> The claw of the moon is of copper,
> And the beak of the moon is of ice;
> Mighty is the flapping of the broad wings,
> The long tail is like a fan,
> The left wing hides the moon,
> The right wing hides the sun;
> Thou, mother of nine eagles,
> Without straying thou fliest over Yaik,
> Thou art not wearied over Edil [etc.].

The shaman then imitates the cry of the bird, calling out, "Kagak! kak kak!" allowing his shoulders to droop, as though crushed by the weight of the huge bird.

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CHAPTER XVIII

NATURE AND NATURAL PHENOMENA

CREATION, COSMOGONY, AND COSMOLOGY

ACCOUNTS of creation are found among all peoples. In many areas there are elements similar to those in the Hebrew account. The Maidus of central California say that in the beginning there was no sun, moon, or stars; darkness was everywhere and over all was water. The Diegueños of southern California say that in the beginning all was water. Things were not born, but were created by two brothers. The near-by Luiseños say that in the beginning Sky was a man, Earth a woman; from them sprang all things—people, animals, natural features of the country, such as rocks, rivers, trees, though not in their present form. An almost identical account of creation is given by the Mohaves. The Hopis, of the Southwest, however, say that the first people lived in an underworld, a view prevalent in the Plains area. These people, or some of them, climbed to the upper world on a piñon tree and were the first people on earth, the progenitors of the present inhabitants. According to the San Carlos Apaches, before the world existed Spider, Mirage, Whirlwind, and Black Obsidian lived suspended in space. From the cuticle which Obsidian obtained by rubbing his side he produced the earth. These primal beings then lifted up the sky and supported it at each of the four corners with an obsidian pillar, which was within the core of a whirlwind. They do not know how animals and human beings came to exist. After a while, however, a flood threatened all, and they escaped to the upper world by means of reeds and a ladder reaching through an opening in the sky of the lower world, the sky being also the crust of this world. Monsters destroyed all except one

girl, Esdzanadlehi, who became the progenitress of the modern Indians. The water pitied her lonely condition, and by it she conceived a daughter, who in turn gave birth to Yinaiyesgani, whose father was the rising sun.

On the Northwest Coast the views of creation are more like those found in California. The Tlinkits say that in the beginning the world lay in darkness, there being no daylight. In the house of Nasshakiyehl, which means Raven-at-the-head-of-Nass, were kept many things, among them the sun, moon, stars, and daylight. Two old men were with him—Old-man-who-foresees-all-troubles-in-the-world, and He-who-knows-everything-that-happens. Yehl, or Raven, was the creator of men and it was he who put the sun, the moon, and the stars in their places. The Tsimshians say, similarly, that at one time the entire earth was covered with darkness. The animals lived at a town called Kungalas, where a chief and his wife dwelt with their only child, a boy. In spite of the great care they took of him, the lad died. The heavens were annoyed by their constant wailing and sent him back alive to them. As among the Tlinkits, daylight was let out of a box and came to mankind.

According to the creation legend of the Shans of Assam, thunderbolts struck the large gourds in which were the ancestors of various tribes, broke open the gourds and released the confined ones, who forthwith re-peopled the earth, letting out also rivers of water, animals both tame and wild, domesticated fowls, birds of the air, and every useful plant.

The Mundas picture Ote Boram and Sing Bonga as self-created. They made the earth with its rocks and waters, clothed it with grass and trees, and created the animals, first the domesticated animals, then the wild ones. The earth being prepared for the abode of man, a boy and a girl were created and placed in a cave at the bottom of a deep ravine. It was necessary to instruct them in the making of a rice beer, illi, before their passions were stimulated and the earth was peopled. From their descendants came the various divisions of mankind.

Almost all tribes have an explanation of the origin of the world, of man, of the animals, often of the whole universe. If from extensive geographical distribution we may infer antiquity, speculations about the origin of the universe occur early in the development of human thought.

According to one Peruvian cosmogony, Con, a boneless son of the sun and moon, created the world and man, leveled mountains and raised valleys by his supernatural powers. He was followed by Pachacamac, another son of the celestial bodies. Pachacamac transformed into birds, monkeys, pumas, and other animals the human race which his brother Con had called into existence. He then created the Indians of historical times, giving them for occupation the cultivation of fields and the growing of fruit. Another account says he created man and woman without taking the precaution of supplying them with food. The man starved, but the woman prayed to the sun for relief, the deity descended, comforted her, and impregnated her with his rays. Four days later she gave birth to a son. Pachacamac, angered at the thought that she had supplicated his father rather than himself—he was a jealous god—destroyed the infant, cut him in pieces, and sowed the portions of his body. From the teeth grew corn, from the bones yuccas, from the flesh all other fruits and vegetables.

The Yuroks of northern California picture the world as floating upon and surrounded by water. The entire earth is gently rising and falling on the rhythmic undulation of the subterranean waters, though with such slow motion as to be imperceptible. Their own locality is the center of the world; here the sky was made. Below the earth is an underworld, a sort of cellar, the world of the dead, connected with our world. To the south is the home of the salmon, where they live in a house. Beyond this to the south is a broad sea of half pitch. This is the rim of things; beyond that the Yuroks do not go even in imagination.

Maori cosmogony reminds us, in its abstractness, of Greek thought:

From the conception the increase,
From the increase the swelling,
From the swelling the thought,
From the thought the remembrance,
From the remembrance the desire.
The world became fruitful,
It dwelt with the feeble glimmering,
It brought forth the night.

In picturing earth and heaven as formerly united, and later thrust apart as they now are, there is a further striking likeness to Greek speculation. Heaven and earth were the original ancestors of men, the source of all things. "Darkness then rested upon the heaven and upon the earth, and they still both clave together, for they had not yet been apart; and the children they had begotten were ever thinking amongst themselves what might be the difference between darkness and light; they knew that beings had multiplied and increased, and yet had never broken upon them, but it ever continued dark."

The Marquesans say that in the beginning night enveloped everything. Darkness and Silence brooded supreme; the god of Light separated from Darkness and confined it to the night. South was evolved from Light and banished Silence; later Dawn was born.

The Chippewas believe the visible universe composed of two plate-like parts, the sky, above which is the upper "plate" or disk, and the earth, composing the lower "plate." The earth is the lower middle of the universe, the sky the upper middle.

THE SUN

Though there are many explanations of how the sun came to be, this body does not fill as large a place in the imaginations of peoples as does the moon, due, doubtless, to the changing nature of the latter and to the irregularity of its appearance—or apparent irregularity, for the naïve mind thinks of the solar day and solar year as fixed units of time.

The Polynesians say the sun is farther from the earth than is the moon, else it would burn up everything with its rays. Other peoples explain its greater heat by asserting that it is

closer to the earth; traditions that the sun formerly was nearer the earth are found not only in Greek mythology, but in the Plains and in the southwest area of the United States.

The Veda account says the sun came from the eye of Purusa. This *motif* is reflected in the culture of the Nias, who say the sun came out of the right eye of Sihai, the first man.

Xenophon states that the Zoroastrian Armenians sacrificed horses to the sun. The eighth month of their calendar, as also the first day of every month, was consecrated to the sun and bore its name. Like the Persians, they prayed toward the rising sun. This custom was adopted by the early Church and to this day Armenian churches are built and Armenian dead are buried facing the east, the west being the abode of the devil. A similar orientation was adopted by Western Christianity under Eastern influences. By means of witchcraft the Armenian sorcerer could bring the sun down.

The Hottentots say the sun is cut to pieces after it sets, is fried in a pot and put together the following morning. It is compelled to move along in the heavens in order to make room for the moon. Long ago the New Zealanders complained of the rapid journey of the sun across the heavens, thus abbreviating the day. The culture hero, Maui, ancestor of the Polynesians, contrived a plan for snaring the sun and compelling him to travel more slowly, so that the days would be longer. After the sun was released he went slowly and feebly on his course.

THE MOON

In the Euahlayi tribe of Australia infants are under the patronage of the moon, and mothers are careful every new moon to make a mark on the child's forehead and put dabs of earth on cheeks and chin. "And very careful are the mothers not to look at the full moon, nor let their babies do so; an attack of thrush would be the result." A woman who stares at the moon will be punished by having twins sent to her. A Thurawal (New South Wales) story tells of a visit of the moon to the earth, and its subsequent return to the heavens. Queensland natives regard the moon as the brother of earth-

worm, for it bores its way out of the ground, rises into the sky, sinks once more, and finally dies. Earthworm has an abundance of brothers and sends a new one each month. On the Bloomfield, no native may stare at the moon long, since this would cause a heavy rain. Children must not point at the moon with the fingers extended, nor point at their own shadows in the moonlight, because this would cause the death of their parents. At Cape Bedford the belief prevails that crabs are not good unless caught at the full of the moon. The moon is regarded as the husband of the sun; during the new moon he is starving. He, therefore, goes on a fishing expedition, and being successful, returns as a full moon, for he is well gorged. The moon made the first man and the first woman, say the tribes on the Proserpine River. In Gippsland the natives sometimes threaten children to the effect that they will send for the spirit living in the moon, called "evil in the moon," to carry them off to that orb. At the full of the moon, say the Aruntas, the moon-man is dragging along with him all the opossums which he has killed; later he changes into a gray kangaroo which is trapped by young men—that is, the moon diminishes and finally disappears.

The Koitas greet the new moon with shouts which are taken up and repeated by all in chorus. Though all the heavenly bodies, more particularly the sun, moon, and morning star, are venerated, the moon is the only one whose appearance they greet with shouts. A certain dance of the Southern Massims is held some five or six days before the full moon. In the Torres Straits, at the first sight of the new moon the ghost which has just entered the spirit realm is introduced by his friend to all the other *markai* (ghosts), who strike him on the head with stone-mounted clubs, thus making him a *markai*. Hence the relations of the deceased are wont to weep at the first appearance of the new moon after the beloved one's death, for it means that the wandering ghost is now killed and converted into a permanent inhabitant of the distant spirit world which lies to the west. Should one be transported temporarily to the spirit land, he will return at the next new moon. At Saibai the initiation ceremonies

take place during the first new moon of the southeast monsoon. On Murray Island, as in Saibai and Yam, the moon is associated with the catamenia.

On Murray Island, the evening star is regarded as the wife of the moon. Once a month they meet, then quarrel; the moon leaves his wife, going farther away every night until the quarrel is patched up and they meet again, only to quarrel once more. The Andamanese had names for the phases of the moon and for its connection with the tides.

For some Malay tribes, such as the Jukun, the moon is the "Island of fruits," the heaven to which spirits of the good go. So in parts of Polynesia (Bowditch Islands) and among the Salinans and Guaycuras of the New World.

A Polynesian legend states that the moon is diversified with hills and valleys, like our earth, and is adorned with trees, among these the aoa, the shadow of whose branches occasions the dark parts on her surface. In ancient times a bird flew to the moon and plucked the berries of the aoa, which are smaller than grapes. The bird readily carried them, and, flying over the islands, dropped some of the seeds, which, germinating in the soil, produced the aoa tree. The man in the moon is Rona, who stumbled as he went about at night, and was taken up to the moon.

For the Maoris the planet Venus and the moon figure in the omens. "If the planet Venus happens to be seen very near the moon and above it in the heavens, at a time when a Pa is besieged by a foe, it is an omen that the foe will take the Pa. But if the planet is below the moon, it is a sign that the *tangata-whenna,* or men of the soil, will be able to defend themselves. The following reason is given for their interpretation of this sign in the heavens: The moon is considered to represent the Pa, and the wandering planet the aggressors. The one uppermost is supposed to represent the victor."

The reputed origin of cursing was a malediction on the moon. The beginning of a curse uttered by the priest is: "May your eyes look at the moon." To insure abundance, vegetable seeds were planted about the full of the moon—possibly an idea borrowed from Europeans who introduced

the seed. Every month the moon goes to bathe in the Water of Life, sometimes called the "Great Lake of Aewa," to renew her life and strength after it has waned. The Water of Life is situated in the fourth heaven, Hanora, the heaven whence the soul is sent to inhabit the body of a new-born child.

The appearance of the new moon was an occasion for special religious rites among the Mandingos. In the Fjort, the sun, Ntangu, and the moon, Ngonde, usually are described as brothers. "Two brothers, Ntangu and Ngonde, lived in a village by the sea; and Ntangu bet Ngonde that he could not catch him up, so they set off racing. Ngonde caught up Ntangu, and then Ntangu got vexed and said he could catch up Ngonde, but he never did, so Ngonde won the bet." The origin of the story may rest in the fact that the moon sometimes is seen during the day, in company with the sun, but the sun is not seen at night in company with the moon. The appearance of the new moon they greet with loud cries. Ewe fables are usually told on moonlight nights, when the young people of the town or village gather together in one of the open spaces between the houses. The Ashanti show respect for the moon, and Ellis believes, on linguistic evidence, that the moon was once an object of worship on the Gold Coast. In Dahomey the appearance of the new moon is announced, the people running through the streets with loud shouting. A moon fetish guards sleeping Dahomans. In parts of Dahomey the stars are the daughters of the moon. Sacrifices are offered to them from time to time, the moon formerly being represented as a human being. A Gaboon story relates how the sun gained ascendancy over the moon. In Angola, it is said: "There was a time when the sun was young and running wildly about the skies. He met the moon and fell in love with her; they married. For a long time they lived happy and had a lot of children, the stars. Alas! the sun and moon quarreled. The moon was frightened. She ran away and hid behind the earth. Their children followed the mother and none of them appear in the sun's presence. Since that time he has been in hot pursuit of his wife around the earth. She never appears

till after he is gone. Two bright little daughters keep watch morning and evening and tell the moon their father's whereabouts." The Tahitians say, similarly, that the stars are the children of the sun and the moon. The Fangs commune with the spirit of the moon. The Kagoros rejoice at the appearance of the new moon, invoking their deity, Gwaza, to give the people health and good luck during the coming month. In Mashonaland, on the evening of the new moon the natives sit in a circle while the village doctor goes about tossing up each man's set of magic bones; by the way they turn up he foretells the fortune of the individual for the month that is to come. The Bangala greet the new moon with much shouting and gesticulation. They say it was once a python; it goes on a long journey, or, some say, dies every month. The Bakongos say the sun plastered mud over part of the face of the moon, hence the darkened portion when the moon is not full. The Thonga say that the sun and the moon have a race each month, the moon being at first feeble like a new-born child, but gaining strength as the contest proceeds. Later, however, its strength diminishes, the sun overtakes it, and it is entirely vanquished. At the new moon many people have an attack of "lunar madness."

The Balembas shave at the appearance of the new moon. Among the Ba-Rongas the fields must not be worked on the day the new moon appears, nor until it becomes "firm." Nor may one cut roots while the moon is "soft," for that would cause strong winds and hail. Bushmen spirits go to the moon, which is bent because it is doubled up with the burden it carries.

To the unsophisticated, nature seldom is simply nature, but phenomena glide into the phenomenal by an easy transition. This is especially applicable to the realm of the inconstant. Few superstitions attach to the steady sun; the less faithful moon, of changing mien and changing mood, is the subject of speculation, the object of much explanation. So with other phenomena—earthquakes, eclipses, comets—which, to the native mind, occur sporadically and fitfully. Falling within the realm of the inconstant and the variable, they seem not to be held in the leash of invariant law, but to represent the

vagaries of the world in which we live. Some dark meaning is enveloped in their manifestations, which are believed to possess a significance that goes beyond the mere event. The sign signifies something, the event is a herald. Not uncommonly such events are personified, or are represented as occur-

FIG. XX.—A NATIVE HAWAIIAN'S DRAWING OF OMEN CLOUDS.

A cloud like A portends no good fortune for the morrow, but one like B heralds an auspicious day on the morrow.

ring in response to human or spiritual demands. They are ominous, with a meaning apparent to all, or revealed, it may be, only to the elect. Thus prodigious events are portents of good or of evil.

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CHAPTER XIX

BOTANY

CULTURAL IMPORTANCE OF TREES AND PLANTS

In many areas vegetation is the mainstay of life, and in some regions a single species of tree or plant is the main cultural asset. Through the northeastern Woodland area of North America the birch tree is the indispensable product. Of its bark are made houses, canoes, baskets, buckets, boxes, and receptacles of every kind, while it furnishes the material for maps or mnemonic writing, as well as that in which artistic impulses find embodiment. In many parts of Africa the palm tree and its product, the cocoanut, are the mainstay of cultural life. Through much of Polynesia and Melanesia the sago and the paper mulberry tree provide material for all purposes—food, shelter, and clothing.

The Warows of British Guiana utilize the eta tree in numerous ways. From the young center leaves they make hammocks; the fruit and the crown of the tree are used as food, particularly in seasons of scarcity; from the juice beverage is made; from the heart of the plant, reduced to a pulp, the natives secure a starchy sediment which is made into bread. Even in death the tree serves, providing numerous worms as food in the decayed stems. Sails for corials are made from the pith of the stems of the leaves; from the dry leaves which fall off, fires are made in the canoes; the stems of the leaves are utilized in making rooms or partitions in houses, are split and laced on rods, and are used also for arrow or harpoon shafts.

PRIMITIVE BOTANY

In earlier European thought the attribution of a soul to plants as well as to animals was common. By Oriental poets,

as also in modern Greece, the human form is likened to the cypress, and the "weeping" willow has its human-like qualities incorporated in its common name.

Nor is this humanizing of trees a lost art among modern writers. Says Thomas Hardy in *Under the Greenwood Tree:* "To dwellers in a wood almost every species of tree has its voice as well as its feature." The pathos of "one impulse from the vernal wood" is not altogether dead. A species of wild flower found growing only on the battlefield of Avarair, Armenia, is sprung from the blood of Armenian warriors; and "poppies grow on Flanders field."

But myths are not the only characteristic of primitive botany, and much good science exists. It is safe to say that each tribe has an intimate knowledge of the plant life about it, frequently having names for practically every species in the locality. Interwoven with this knowledge are the mythical interpretations. Thus the Euahlayis of Australia say that the constellation of the Southern Cross was the first spirit tree, a huge yaraan, which was the medium for the translation to the sky of the first man who died on earth. When the native cockatoos which used to roost in this tree saw it moving skyward, they followed it, and are still following it, as Monyi, the Pointers. The other yaraan trees wailed because of the sadness which death had brought into the world, weeping tears of blood. The red gum which crystallizes down their trunks is the tears.

Similar beliefs are current in North America. The Fox say that oaks and sumacs redden at the leaf in autumn because the tops of the boughs and the leaves were sprinkled with the blood of the Bear (Great Dipper), which is overtaken and slain every autumn. The Blackfoot say the marks on the birch tree are gashes inflicted in a moment of anger by Old Man, the culture hero. He was being carried heels over head, up hill and down dale, in a wind which it was impossible to resist. In his involuntary flight he caught hold of everything which he passed, but each bush and tree in turn gave way before the fearful wind. At last he caught hold of the birch, a tree which is tough and does not break easily.

To it he clung while the wind tossed him up and down. When it had abated he climbed down from the birch tree very angry. "Here, you old birch tree," he said, "you spoiled all my fun. I was having a fine time playing with the wind. We were running over the hills and the mountains and through the woods, until you caught hold of me. Now I am going to punish you." With that Old Man took out his knife and gashed savagely at the tree. The marks on the birch tree at the present time are the scars left by Old Man's knife.

The principle of fertilization seems not to have been known prior to Assyrian civilization, when fertilization of the palm is pictured on the monuments. The Ba-Ronga believe trees fecundate one another by means of their roots. The Maoris have a complete system of nomenclature for the flora of New Zealand, and are acquainted with the sex of trees, having in some cases distinct names for the male and female. They have different names for trees which change the form of their leaves at different stages of growth. In many cases they have a special name for the flowers of tree or shrub. There are special names for the pumpkin and the gourd at different stages of growth. In the case of at least one shrub, the *coprusma grandifolia,* they have a name for the trunk, one for the leaves, and another for the berries. They apply one name to young unexpanded leaves and another to the leaf in full growth. This is true especially of ferns and acrogenous flora of that type. They have one name for ordinary leaves, another for long and narrow leaves like those of the bulrush, native flax, and similar plants, and another for old dried leaves. A shrub is given one name before it bears fruit, another after the period of bearing.

The names record observed distinctions. Indeed, "every plant and fern has its name in Maoriland; the knowledge in woodcraft displayed by the elderly men is most complete, and such men are extremely interesting companions in the bush. They also have names for all the many varieties of fungi, toadstools, etc." A similar statement is probably applicable everywhere in savagery.

Here, too, distinctions not made by us are observed by the

savage. The Hopis have many names for corn at various stages of growth. Point Barrow Eskimos have but two class names for flowers; one for the yellow poppy and all striking yellow or white flowers, another for the bright pink pedicularis. The Fox has a generic term for plants and herbs, and a word stem which serves as a collective term for fruit, grain, or berry. Plants fall logically into the inanimate class, but many, such as corn, tobacco, apple, are used as animate forms. Sometimes the name of a plant is descriptive, as when the Fox call the pine "skunk tree." (Compare our "skunk-cabbage.")

Nearly twenty kinds of edible berries are distinguished by the Labrador Eskimos. Several varieties of blueberries and of blackberries are distinguished on the basis of color and shape; though these distinctions may merely refer to changes during growth, they show what sharp observers of natural phenomena the Eskimos are. Yet the salmon-berry is identified with the partridge-berry, the Eskimos, one may surmise, seeing the similarities as of more importance than the differences.

Special significance attaches to abnormal or striking characters. For the Iroquois abnormal ears of corn have some especial significance. A multiple ear consisting of a large ear with several smaller ones springing from it indicates that the girl who finds it when husking will have many children. A bifurcated ear having two or three rows on opposite sides and none between, the Mohawks call "road" ear. A girl must not eat this, for if she did an enemy would easily find the way to her. When the husker finds such a one, as when she finds a red or colored ear, each husker contributes an ear of corn to her pile, to ward off the impending disaster. When a podded grain is found on an ordinary ear of corn it is immediately swallowed, thus insuring prosperity in any adventurous enterprises, such as marriage or hunting.

TREE AND PLANT CHARACTERISTICS AS THE BASIS OF PROVERBS

Not infrequently the characteristics exhibited by a tree or plant so strike the imagination, and are such common knowl-

edge, that they serve as the turning-point of a proverb. The Tlinkit says of one who uses his tongue too freely, "You talk too much, just like the yellow cedar"—whose continual crackling is matter of common observation. In this type of proverb, as in most types, the Yorubas are probably richest. Their repertoire includes the following:

Unless the tree falls, you will never be able to reach the branches.

The *afomo* (a parasitical plant) has no roots; it claims relationship with every tree.

"To-day I am going; to-morrow I am going," gives the stranger no encouragement to plant the *ahusa* (a plant which bears fruit very rapidly).

Ordinary people are as common as grass; but good people are dearer than the eye.

He who gathers locust-fruit spends the money of death. (A warning against rashness. The wood of the locust tree breaks easily; the proverb pictures a man perched on a lofty limb to pick the fruit.)

A slave is not the child of a tree (*i. e.*, is not made of wood).

He who tries to shake the trunk of a tree only shakes himself.

MEDICINE AND MAGIC

The primitive pharmacopœia contains many plants and vegetables, but no attempt will be made here to describe it adequately. It must suffice to point out a few examples of the use of plants and trees in magic, though the medicinal and the magical aspect often are inextricably interwoven.

To purge a dwelling of evil spirits and of sickness, a Yoruba house is fumigated with the bark of the erun tree. Charcoal made from the wood of this tree is largely used as medicine. Powder made of the leaves of a certain sensitive plant is a charm which makes the inmates of a house fall into a deep sleep, and is used by thieves for this purpose. The aja vine will cure inflamed breasts. The generic term used in Fox for plants and herbs—*ask*—is common in the names for medicines. A log which one jumps over will, among the Bella Coolas, dispel the knowledge of a magic song. Among the Navajos, tar from the piñon tree smeared over the naked body is a protection against the evil influence which emanates from a corpse. In many tribes of North and of South America the belief prevails that tobacco possesses mysterious vir-

tue. The Todas believe that worms come from eating honey, which in turn owes its origin to flowers, hence the names of flowers are used in incantations to cure stomach-ache. The dheal tree is regarded by the Euahlayis as sacred to the dead, and its leaves are used in magic to kill a person. Hair is placed on the tree for the same purpose. "If it be known that a man has stolen a lock of hair, he will be watched and prevented from reaching the boogahroo tree (a tree where poison sticks are kept) if possible." Such a tree is tabu to all except medicine-men and others who hold communion with spirits. At a girl's initiation a sprig of the dheal tree is thrust through the septum of the nose. The Koitas believe that a club or a spear made from a tree growing near a certain hill which is tabu will inflict an especially severe wound, though not necessarily a fatal one. Another tabu, having the power of making people sick, is imminent in a large tree, conceived as having human form. The Southern Massims cause death by muttering spells over the young shoots of a certain tree, which are chewed during the utterance of the malign spell. The North Queensland custom of putting teeth in trees may have some magical significance.

Among the Berbers of Ait Zeltu, in southern Morocco, sick people visit a miracle-working wild olive tree, growing in the immediate vicinity of the supposed grave of Sidi Butlila. There they relieve themselves of their complaints by tying a woolen string to one of its branches; in case of headache the patient previously winds the string three times around the top of his head; in case of fever, he spits on the string, and when tying it to the tree says, "I left my fever in thee, O wild olive tree." He transfers his disease to this tree because there is *baraka* (benign virtue) in it, and would not expect to be cured by tying the string to an ordinary tree.

Among the Chinooks a homicide wore around his head, ankles, knees, and wrists rings of cedar bark. At the end of the purification period he placed his head ring of cedar bark on a tree, after which the tree would dry up. The Wahpeton Dakotas find the birch *wakan,* and a potent medicine. They cut it only when they have definite need for its wood or

bark. During a thunderstorm birch bark is burned to propitiate the Thunders, a roll of birch bark being kept in the tipi for this purpose. The maple, the oak, and an unidentified tree of northern Minnesota constitute, with the birch, the four useful and *wakan* trees. The oak is "owned" by the Thunders.

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CHAPTER XX

GEOGRAPHY

For the savage, as for the early dweller about the Mediterranean, the locality in which one lives is the center of the world.

Sometimes the geographical distinctions observed by us are ignored by the savage. Many African tribes make little distinction between river and lake, including both in one category. Usually, however, the native has an explanation of the origin of natural features which impress him.

Some North American tribes explain the presence of mountain ranges and of canyons as due to a deer, which tore up the ground with its horns. The Central Australians say that Alcheringa women went about the country forming natural depressions and cutting passes through mountain ranges. The sand-hills in the country of the Loritjas are the excrement of two serpents which ate many kangaroos in the old days. Victoria natives attribute the formation of the first lake to the flapping of the wings of two birds; this caused the water in a near-by spring to rise until it formed a lake. The birds then flew over all the parched country, flapping their wings and forming the water-holes which since have served as drinking-places. Myths attributing the origin of certain rocks to primal beings or to tribal heroes or heroines of the mythical past are almost world-wide. The Aruntas point out a rock in a certain creek which is the head of a kangaroo that jumped there in Alcheringa times. The Loritjas recognize two kangaroos transformed into rocks which can now be seen in one of the water-holes.

In the Torres Straits there is a legend to the effect that a certain hill possessing some resemblance to a dugong was once a dugong. The cuttle-fish gods of Savaii were chased by an Upolu hero, who caught them in a net and killed them. They

were changed into stones and now stand in a rocky part of the lagoon on the north side of Upolu. The Yanas point out two rocks with circular notches, said to have been bitten out by a grizzly bear in pursuit of a deer which stood on the top of them.

Among the Eskimos explanations of the peculiar shape of rocks are common. The Labrador Eskimos have noted near Nachvak a curiously formed stone which to one going past by boat has the appearance of a woman seated, chin in hand, thinking—a natural Rodin. Its explanation is as follows: A certain woman who was an outcast from the village, a woman without relations to protect her and a slave to everybody, was one day passing this point in a boat. She had been rowing all day in the umiak and was tired. She went ashore, sat down on a rock, with chin in hand, and thought about her hard lot in life. She wished she might be changed into stone, like the one on which she was sitting. While she was thinking this a crow flew over her, circled three times about her, cawed three times, and she gradually turned into stone. There she still sits, chin in hand, thinking. To her the Eskimos, whenever they pass the spot, make offerings of needles, tobacco, and matches. The women have placed a string of beads around her neck.

Similar stories about rocks, and similar offerings, are prevalent to the south among the Micmacs, and are found among the Eskimos from Labrador to Alaska.

Labrador Eskimos think that not only all animals, but also any prominent physiographical feature, such as a rock, point, cove, or mountain, is inhabited by a spiritual counterpart, the *innua,* the genius or thinking spirit of the object or spot. Thus they put spirit into their geography.

The Chatos of Turkestan say the cobbles and small round bowlders in the flood plains north of Imamla are the brains and skulls of infidels destroyed in a great hurricane which arose after four Imams had been killed.

In India much attention is given large stones, especially large bowlders. Some are revered for their peculiar shape

and markings, others because they are the dwelling-place of a spirit, usually that of a deceased member of the tribe.

Crooke describes five important types of stones in India: the boundary stone, respected, as in Babylonia, Egypt, ancient Palestine; the village stone, sometimes in the center of the village, which incorporates the life or fortunes of the village and must be treated respectfully; death and memorial stones, marking the grave of a deceased personage and receiving respectful regard; the bride stone, on which or at which marriage takes place and which is a witness stone; the grindstone, which is regarded as possessing especially valuable properties.

Magical powers are attributed to holed, or perforated, stones, especially in India, the British Isles, and western Europe. Joining of hands through them in contract makes the agreement especially binding. People creep through or under sacred stones and are thereby cleansed or regenerated. Taking oaths on sacred stones is common. Until the time of King James VI of Scotland (James I of England) Scottish kings were crowned on the Stone of Scone. It was then brought to London and has since been under the coronation chair in Westminster Abbey in which all subsequent British sovereigns have been crowned. Other stones give strength or cure diseases, a common belief in western Europe.

The Eskimos have a generic name for ice and many other words to denote kinds of ice: Ice which is beginning to form in bays and inlets is known as *cikwaq* (young ice); when strong enough to permit travel over it it is *cikwuliaq;* broken, shifting, winter "pack" ice is *tuvaq;* the heavier glacial ice coming down from the Arctic is *kuvat;* the "shore" ice, adhering to the coast line when the sea is open, is *quainaq;* the place where the ice meets the open water, a favorite hunting place in season, is "edge."

Similarly, there are many distinctions for snow; snow lying on the ground; "living" snow, yielding blocks out of which houses can be built; and the kind of snow found in newly made drifts which have just begun to harden.

Place names have been little investigated by ethnologists,

but in each tribe in which this has been done a long list of place names has been procured.

Examples of place names used by the Yurok are: "In the water he lies" (a sand pit); "tree where it stands" (a flat); "where they gather mussels" (a small sea stack); "landward stream" (an upriver branch stream). The Tewas use such names as: "red water creek"; "dwell pass pueblo"; "little corner of the mosquitoes"; "badger water"; "cultivated land corner."

Names of localities frequently are descriptive. The name of a point one day's journey away the Eskimos call "one sleep," while one from which deer are driven into the water is known as "he swims."

The Micmacs have an intimate knowledge of local geography and habitually use descriptive names to refer to the indicated places. Often these names are derived from an incident which occurred there, or from a fancied resemblance to an animal or thing. We find, for example, "Lookout Point," "Otter Point," "Big Foot," and so on. The application of descriptive names to localities is world-wide. There are scores of "Blue Ridges."

The savage is well oriented in the local geography. He has a fine working knowledge of the natural features about him, being acquainted with the streams and tributaries, the lakes, hills, mountains, valleys, canyons, gulches, ravines, and hillocks.

In some areas, too, there is map-making, the tracing on bark of the routes over which the natives go to hunt or to fish. Map-making is perhaps most highly developed among the Indians of the north Woodland area of North America, where birch bark is employed for the purpose.

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CHAPTER XXI

PSYCHOLOGY

In primitive psychology mental states are localized. Among the Kafirs the ears are the seat of intelligence, the skin of the forehead, where perspiration is most commonly seen, is the seat of perseverance, and other organs have specific mental qualities. Strength resides in the heart, vigor in the marrow of the bones, life in the blood. Conscience resides in the pleura, the heart, or the throat. The Basutos place feeling and will in the heart. A large heart implies an intelligent man; a long heart a patient man; a short heart an irritable man; a black heart an unhappy man. These last two expressions are common among other South African tribes. When a man looks as sour as vinegar and as black as thunder, his heart is "sore and black."

They locate emotion in the lungs. A man who feels elated says his lungs are uplifted; one overcome by his emotions says his lungs prevent him from speaking. The spleen, to which much sickness is attributed, "bites" or "accuses." Those about to die are "losing heart"; when a man is recovering, his "heart is coming back." The Bakongos indicate fear by the phrase, "the heart stands up"; contentment is expressed as, "heart leveled down"; to soothe or comfort a person is to "knock down his heart"—that is, to bring it down to its proper level. Disappointment is expressed by, "the heart is bent backward"; determination by the phrase, "tied to the object"; "having the heart on fire" is "to be in a stew," as our inelegant metaphor has it; vacillation is "the heart stutters"; one who is sorry for his evil-doing "turns his heart around." A sullen or sulky man has his anger "insufficiently cooked"; one with a hasty temper "pulls out his anger"; a person who habitually loses his temper is "a native of the town of Lose-your-temper." One quick to anger "has the stomach of an

eel," an animal believed to have a stomach quickly and easily filled. To have a pleasant outward appearance is to be "flattery to the eyes"; to be dumfounded is to be "tied up"; to be unable to refute an argument is "to have drunk the palm wine"; to talk incessantly is "to cause words to come in crowds"; one who contradicts himself "talks in smears and blots"; an evasion is to "talk in halves"; to use obscure language is to "have one's words locked up." A man who supports or agrees to a matter "pushes on the water bottle"; to refuse utterly to give attention is to "expel the request from the ears," by shaking them violently and noisily like a dog or a goat, the word for this kind of refusal being that used to describe the flap of the ears of a dog or a goat when it shakes its head violently to drive away flies. To shame a person is to "grind his self-respect" into small pieces, so that it will not cover him; to humiliate him is to "weed up his pride"; and to conciliate him is to "weed up his anger." The localization of mental functions in various parts of the body is exemplified in the Thonga belief that patience resides in the liver; hatred in the spleen; genius, intellectual gifts, and will power in the heart; intelligence and eloquence in the chest; conscience in the diaphragm, its contractions being identified also with "internal troubles" of the mind—whatever that may mean to a Thonga. Thus the James-Lange theory of the emotions has its ardent supporters outside of academic institutions. Insanity the Samoans attribute to the presence of an evil spirit, in this respect being good medieval theologians. The Bellacoolas attribute it to the departure of the soul from the body without the soul breaking its shell; when the soul breaks its shell the owner dies. In North America fainting and swooning commonly are attributed to the visitation of a ghost and subsequent fright—an interpretation found in many other areas of savagery.

As to mental development, in general savages have little curiosity regarding it, and, asking no questions, have no answers. Yet speculation is not altogether absent. The Omahas say the mind of a new-born child is dark, like the

night of its birth. Gradually it begins to discern and to remember things, as objects seen in the early dawn; finally it is able to remember clearly and observe discriminatingly. Its mind is then "white" like the clear light of day. Finally it becomes old enough to know sorrow; only then is mental maturity achieved. Sorrow marks for the Omahas the fullness of knowledge. (Compare Genesis ch. III.)

DEATH

It is the exception to regard death as natural. In the Gaboon district of the French Congo, when a death occurs, the deceased is visited by a sorcerer who dissects the breast of the corpse, making three cuts with a knife, two laterally and one transversely, turning the skin back over the face. He examines the bowels attentively, marks the last muscular contractions, and on the basis of his findings pronounces death natural or, as the case may be, supernatural. The Eskimo shaman determines it by a series of head-liftings. The rule in savagery is perhaps the following: When the cause of death can be seen, such as attack by a tiger or a spear thrust, the death is considered natural; when no cause is obvious, it is attributed to the working of evil magic or to the machinations of spirits. A gradual death, in which the extremities are apparently dead while consciousness remains, the Hidatsas account for on the theory that the four souls of the man are leaving, one at a time, with death to the deserted portions. When all have left, death is complete.

THE SOUL

The soul, variously pictured, is thought of, often, as a sort of wraith, an ethereal substance having a certain resemblance to human beings, thin and vaporous. Frequently, as in South Africa and among the ancient Greeks and Romans, the soul is identified with the breath. Often, as among the Thongas, the shadow is the soul or a counterpart of the soul. The Nootka say the soul has the shape of a tiny man and is located in the crown of the head. The Bellacoolas say the soul

dwells in the nape of the neck and is similar in shape to a bird inclosed in a shell. By laying the hands on the neck of a person shamans can determine whether the soul is present or has left the body. Plurality of souls is not an uncommon conception. The Eskimos attribute to a person four souls: the name, the shadow, the breath, the self.

DREAMS

The Maoris paid much attention to the dreams of the war chief or the principal priest, especially to dreams on the night preceding an engagement, and were guided by the omens which the dream indicated. If a newly married man, while sleeping soundly at night, beholds lying on the ground human skulls ornamented with feathers, he awakes with the assurance that his wife will soon conceive. If the feathers are those of the bird called huia, it is a sign that the child will be a girl; if those of the kotuka (a white crane), the dream prognosticates a male child. The Bokongos say that in dreams the spirit of the dreamer is abroad—a common interpretation in savagery. The Kafir medicine-man acquires power through dreams, as does the Australian medicine-man.

By the medium of a dream the Kafir expectant mother learns the sex of her unborn child. The Thongas profess to be disgusted when a dream is fulfilled, but the genuineness of their disgust must depend somewhat on the nature of the dream which is fulfilled.

Dreams play an important part in the life of North American aborigines, usually betokening something in keeping with the nature of the dream. The Dakotas find it unlucky to dream of the moon. It is lucky to dream of hawks, but unlucky to dream of bears, for the latter are slow and easily wounded. A dream about snakes will be the result of killing one, for no good comes from snakes, they say—a sentiment echoed by the Menominis. The Manitoba Dakotas have dreams inspired by current events, like those of the white man, always with tinges of the system of belief peculiar to their culture.

Among all the Plains tribes dreams play an important part in connection with the ceremonial organizations.

To the Arapaho dreams were the revelations of the spirit responsible for misfortunes, and also, occasionally, responsible for remedies. Black Coyote, who had lost several of his children in quick succession, while lying on his back during a four days' fast held to expiate the overruling spirit heard a voice resembling the cry of an owl or the subdued bark of a dog, signs of evil portent. To the Omaha dreamer the moon appears, having in one hand a burden strap, in the other a bow and arrows, and the man is bidden to make a choice, his career being influenced by the choice he then makes.

To the Menomini a dream about the moon brings long life, but a life destined to end in misery. Those who dream of it are strong when the moon is full, weak and sickly when it is on the wane. The Huron shows a Freudian insight into the meaning of dreams by interpreting them as the voice of the soul's desires. To the Hidatsa only those dreams which follow prayer, sacrifice, or fasting, are portentous; to the Mandan all dreams are prophetic or ominous. A Mandan dreamed of firearms, and soon afterward the whites arrived with them. They dreamed of horses, they say, before they obtained them. For the fasting youth to dream of a piece of cherry wood or of any animal is a good omen. Among the Manitoba Dakotas those who dream of a visit to the clown become clowns—that is, powerful medicine-men. Those who have such dreams are commonly nervous during a thunderstorm, though no misfortune befalls them unless they have been negligent in performing a duty assigned them by the Thunder beings. Those who have not had such dreams pay no heed to thunderstorms. Intimations of good or of evil fortune frequently are given the medicine-man in a dream, often these advices being conveyed to the dreamer by the powerful and mysterious Stone.

In Northern Andamanese the word for "reflection" or "shadow" is applied also to a "dream." The dream is sometimes interpreted as due to the fact that the sleeper's double has left his body and gone a-wandering.

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CHAPTER XXII

TIME DIVISIONS AND THE CALENDAR

CONCEPTS OF TIME

THE time concepts of primitive folk seldom are identical with ours. In Toda "twelve years" is a common expression for an indefinitely long time, and may be translated "forever," as in Slavic the word for a hundred years means also "forever." In many languages "over five," or "over ten," is equivalent to "a great deal," or "a long, long, time." The Yoruba proverb, "Time is longer than a rope," carries a concept of time as having spatial extension or length. Many Yoruba words and grammatical processes assign spatial relations to time concepts. Thus *li* ("in") is used as an affix to the adverb of time and to the adverb of place. "Yesterday" is "behind to-day," "to-morrow" is "in front of to-day." *Sin* ("to lead the way") means "before" or "sooner." *Dehin* (*de,* "to reach," *ehin,* "the back") means "afterward." *Pe* ("to be long") means "late." "Now" is expressed by a word which means, literally, "to have this time"; while "to have the time back" means "afterward." So in Chinyanja the tense corresponding to our future is made up from the auxiliaries *kunka* and *kundza*—*i.e.,* "go," and "come"—with the idea in the tense not so much of time to elapse before the action in the verb can be performed, as of distance which must be covered before the action expressed by the verb can be completed. In Salish concepts of time are expressed by words denoting space or place. Actions are conceived of as taking place somewhere rather than somewhen. Time can be denoted by an independent temporal expression such as "yesterday," "to-morrow, " "next moon," and so on. When this is not necessary, past and future are expressed by a term of locative signification—that is, by an adverb of place. Both past and future

actions are "away from" the speaker, are "over there." We find a "there" of the past and a "there" of the future. Some Salish tribes use the locative *ne* to express future actions, while other tribes use it to express past action or state of being. We say "somewhere in the fifteenth century," when we mean "somewhen."

SEASONS

Everywhere in savagery, perhaps, there is a recognition of seasons. Among the Ba-Huanas the year is divided into two seasons, rainy and dry. These are subdivided into lunar months, and the latter into weeks of four days. Dates are reckoned by nights—as commonly in the New World. A man says, "I shall sleep eight nights and then come to visit you." The Yorubas make a similar division of the year. The rainy season is divided into the season of first rain and that of second, or little, rain. The Hidatsas speak of seasons of cold weather, snow, warm weather, and death and decay, roughly agreeing with our four seasons. No number of moons is allotted to these respective seasons. The Crows divide the year into two seasons: the beginning of the spring to the first fall of snow, the first fall of snow to the disappearance of ice. The Hopis recognize two seasons, the hot and the cold, each with designated moons. The cold period begins in August and ends in March, so that the name "cold" is not strictly applicable.

Greenland Eskimos divide the year into seasons corresponding with the wanderings of animals, the position of the sun, moon, stars, and other observations derived from experience. The Brazilian Coroados measure time by the seasons of the ripening of fruits and by the phases of the moon. In New South Wales the year is divided into six seasons, each composed of two moons, the moon being subdivided into waning and waxing. When the sweet scent of the violet blossoms of the mufufuma tree fills the air and the Pleiades are visible in the east after sunset, the Ba-Ilas of Africa know that the time for planting has arrived.

In Samoa the appearance or disappearance of certain kinds

of fish marks the months or seasons. Thus *lo,* almost equivalent to our April, is the name of a small fish which comes in plentiful shoals at that time of the year; another period, corresponding roughly with our November, is "the first of plenty," and refers to the fact that fish and other food then become plentiful; Mulifa, "end of the *fa* season," corresponding roughly with our September, indicates the end of the season for catching the fish called *fa.* Andamanese do not count the moons in a year, but reckon by means of the cool, hot, and rainy seasons, further dividing the year into twenty minor seasons, most of which are named after trees from which bees obtain honey. They also divide the year into two portions, according to the prevailing monsoon, one season of about five months, the other of about seven months. The latter is divided into three periods: stormy weather (October and November), cold season (December to February, inclusive), and hot season (March and April).

ASTRONOMICAL OBSERVATIONS

The tribes of New South Wales are apprised of the approach of the seasons by the appearance of certain stars or constellations, as are also the natives of the Torres Straits. Kafir natives tell the time at night by the position of the stars, and, by watching the Pleiades, know when the time for sowing arrives. If the three stars called Onondendewana cannot be seen at midnight, it is too late to plant mealies. The month and the new-year are told roughly by watching the changes of the moon, corrections being made by observing the flowering or the budding of certain plants. As among the Thongas, the new-year dates from the time when the Pleiades can be seen immediately before sunrise. This and other constellations indicate the time for seed sowing. Reference is made to the Pleiades to determine when the moon is properly named. Owing to the fact that they have only twelve moons in the year, the lunar calendar falls behind the solar. There may be a difference of opinion as to the proper name of the moon. Since the events marking the respective moons vary in time, native astronomers frequently are at variance as to

the proper name of the month. The problem is clarified by the first appearance of the Pleiades just before sunrise. Then a fresh start in the lunar calendar is made. When again the months do not correspond with the events which should characterize them, reference is made to the stars, and again the calendar is corrected.

The Zuñis use a large upright block of sandstone as a datum point for taking observations of the sun. By this means they determine the time for planting and harvesting, the beginning of the new year, and the time to perform certain ceremonies. By the aid of devices which the native priests have at their command they are able to fix with a fair degree of accuracy the date of the winter solstice. Mendeleef regards this as an aboriginal invention. The Kayans of Borneo make similar observations from the length of the shadow thrown at midday by an upright stick, the length of the shadow varying seasonally.

The Aztecs based the calendar on the solar period, reckoning this as three hundred and sixty-five days. This they divided into shorter periods of twenty days each, eighteen of these periods, constituting a total of three hundred and sixty days, making the portions of the year for which they had names. To these three hundred and sixty days was added an unnamed five-day period. In the twenty-day period there were names for each day, indicated by signs, most of the days being named after a species of animal, though the last four days were named, respectively, "motion," "flint," "rain," "flower."

THE YEAR

All peoples use a calendar based on the solar year. The Hidatsas, as is true of most Plains tribes, count by winters when reckoning years. For the Crees, the first croaking of the frogs was a signal that the time had come to make preparations for the annual religious festivities. Not uncommonly some such seasonal, or annual, recurrence is the signal for the holding of a ceremony. To the Dakotas the appearance of a particular flower may be the sign for the performance of a sun

dance or personal vow. The Mandingos calculate the years by rainy seasons, there being one rainy season in each year. The years they distinguish by some unusual occurrence, such as the year of the Kaarta war, the year in which Gadon was plundered, etc. A similar system was used by the Thongas, and was common in North America, particularly in the Plains area.

MOONS

As all peoples have some event of annual recurrence on which they base their reckoning, so all utilize the moon. Its prominence as a heavenly body, together with its disappearance and reappearance, as also its phases, have directed the attention of the savage to it and induced him to utilize it in his calendar. Usually the moons have names corresponding to an event which characterizes their appearance. In South Africa there is the month of the cuckoo, heralded by the first call of that bird; the month of the Erythusia, which begins when this flower blossoms; the month of great dust, in midwinter; and so on. The Ba-Rongas one of the Thonga peoples, speak of the Nhlangua, the month when the flowers are swept (*hlangula*) from the trees, about October; Newendjambala is the month during which the antelope (*mhala*) brings forth her young, about November; Mawuwana is the month when the *tihuhlu* are plucked, at which time the people shout, *"Wuwana! Wuwana!"* in their joy at having plenty of almonds (about December).

The Todas divide the year into twelve months, each beginning with the new moon. The year begins with the new moon which appears in the month of October, at which time important tribal ceremonies are performed. Each moon has twenty-nine days. A record is kept of the number of days from new moon to full moon, and from full moon to new moon. The full moon is reckoned as falling on the fifteenth day after the new moon, and the new moon as falling on the sixteenth day after the full moon (a total of twenty-nine days). The Tahitians have fourteen lunar months, two being intercalary. Most of them refer to agriculture or to phenomena of vege-

table life. In New Zealand there are thirteen months. In other parts of Polynesia the year is divided into two parts, determined by the appearance and disappearance of the Pleiades. They also reckon by generations, in Raratonga going back twenty-nine generations and in Mangareva twenty-seven generations.

In the Society Islands the year is divided into thirteen lunar months, a month being dropped in some years in order to reconcile the calendar with a solar system. On the island of Bali the calendar has six months, each month containing thirty-five days. There is a further division of the year into weeks, there being thirty weeks of seven days, day and night being divided into eight hours each, day being the period from sunrise to sunset, and night the period from sunset to sunrise. The Balinese word for week, *woekoes,* indicates that this division into weeks is the result of European influence.

The Iroquois recognize a division of the year into four seasons, corresponding closely to our four seasons, and into moons. The meaning of "spring" is, "It is time to plant (or sow)." Summer is "Red has come"; autumn, "The leaves fall"; winter, "The cold has arrived."

The moons, or months, beginning with about January, mean:

1. The sun is large again.
2. Leaves fall down into the water (referring to the leaves of such trees as oak and beech, which retain their leaves during the winter).
3. The leaves are quite (or much) immersed.
4. Vegetation stands up again.
5. Fruits are getting ripe (or are quite ripe).
6. Plants are growing.
7. Plants are growing abundantly.
8. The field falls, the harvest is gathered.
9. The harvest is entirely gathered.
10. The cold is coming again.
11. Again it is very cold.
12. The sun is returning.

Winnebago months, or moons, are the following:

First bear	Elk-whistling
Last bear	When the deer paw the earth
Racoon-breeding	Drying of the earth
Fish becoming visible	Digging
Cultivating	Deer-breeding
Tasseling (of the corn)	When the deer shed their horns

The Omahas have the following names for the months, corresponding roughly with our calendar from January to December:

1. When the snow drifts into the tents.
2. The little frog moon.
3. The moon in which nothing happens.
4. The moon in which one plants.
5. The buffalo bulls hunt the cows.
6. When the buffalo bellow.
7. When the elk bellow.
8. When the deer paw the earth.
9. When the deer rut.
10. When the deer shed their antlers.
11. When the little black bears are born.
12. .....?

The Otos and Iowas call January the racoon month, otherwise their names for the months are identical with those of the Omahas.

The Wahpeton Dakotas of Manitoba recognize the following twelve moons:

1. Stormy moon.
2. Lesser stormy moon.
3. Moon of sore eyes (as a result of the light reflected from the snow).
4. Wild fowl moon. (The wild fowl begin to appear at this time.)
5. Planting moon.
6. Strawberry moon.
7. Middle moon.
8. Leaves turning yellow.

9. Leaves falling.
10. Harvest.
11. Beginning of winter.
12. Full winter.

Among the Point Barrow Eskimos the months receive such names as:

Little sun.
Time for starting out (to hunt reindeer).
Time for starting to come home.
Time for making ready the boats.
Time for fowling.
Time for bringing forth (laying eggs).
Time for working (sewing).
Second time for sewing.
Time for dancing.

The Eskimos along the Lower Yukon have the following moons:

Season for top-spinning.
Time of offal-eating (or, cold moon).
Time of opening upper passage ways into the houses.
Birds come.
Geese come.
Time of eggs.
Time of salmon.
Time of red salmon.
Time for young geese to fly.
Time for shedding velvet from reindeer horns.
Mush ice forms.
Time for muskrats.
Time of the feast.

On the east Labrador coast the Eskimos have the following names of months (with approximate equivalents in English):

Ice-forming moon. December.
Coldest month for frost. January.
Ground cracked by frost. February.

The month of the young jar seal. March.
The month of the young bearded seal. April.
Month of fawning. May.
The month of the young ranger seal. June.

They attempt to fit the lunar divisions into the solar year, and since the months shift, they must be righted from time to time when the discrepancy becomes obvious. Summer months are grouped indiscriminately into one season, the Eskimo explanation being that there is plenty of game then and no necessity for distinguishing the moons. The apology furnishes the pragmatic philosophy underlying the calendar distinctions for the remainder of the year.

In the Ungava district June is "egg moon"; July, "mosquito moon"; August, "berry moon"; September, "fading moon," the month when the color of leaves and mosses fades; October (?), "the moon when ice forms around the shore"; November (?), "inland moon," the moon during which the people go into the interior to hunt deer.

The Natchez calendar contains the following thirteen moons, the year beginning with the spring solstice:

Deer moon
Strawberry moon
Small corn moon
Watermelon moon
Fishes moon
Mulberry moon
Maize moon
Turkey moon
Buffalo moon
Bear moon
Cold-meal moon
Chestnut moon
Walnut moon

The Bakairi Caribs have the following moons:

Hardest rain
Less rain
Rain ceases
It (the weather) becomes good
Wood-cutting
End of the dry time
The rain is coming
The maize ripens

The Aztecs had the following:
Manta moon. (Manta reappears on the surface of the sea.)

Wind moon
House moon
Water moon
Dog moon

Lizard moon
Snake moon
Corpse moon
Deer moon
Rabbit moon
Monkey moon
Malinalli (a medicinal plant) moon
Maize moon

In Peru the following moons were recognized:

Small growing
Great growing
Flower growing
Twin ears
Harvest
Breaking soil
Irrigation
Sowing
Moon of the feast
Moon of the feast of the pueblo of Unna.
Moon of the pueblo Aymara
Moon of the great feast of the sun

The Aymara calendar includes the following moons:

Knot moon
Breaking up of the soil
Harvest
Moon of the harvest feast
Quinoa sowing

The later half of the Aymara year is divided into two seasons known as "time of hunger" and "dry season."

Since the lunar period is not evenly contained in the solar period, and since practically all peoples have tried to use both systems of reckoning time, the problem of reconciling the one with the other sometimes has been considerable. As was mentioned, the Kafirs of Africa are not always sure of the month; the same uncertainty has been recorded of tribes in North America and must have been universally true of savages. The Greeks sought to solve the problem by the use of an intercalary month. They had an eight-year period containing three leap years of approximately three hundred and eighty-four days each,—that is, thirty days extra. The length of the lunar month, which is between twenty-nine and thirty days, was alternately counted as twenty-nine and thirty days.

Our unequal months and our leap year are a heritage of this difficulty and of the attempts to solve it. We inherit our calendar from the Egyptians through the Romans, who took the Egyptian calendar and reformed it, Pope Gregory adding the last touches. The Egyptian calendar often reckoned

time by the year of the reign of a specified Pharaoh, much as is done in the dating of the laws passed in England at the present time. The year they divided into three seasons:—the season of the inundation of the Nile, the season of the growing of crops, and the intervening season of harvest and the repairing of canals. They had a short year of three hundred and sixty days made up of twelve months of thirty days each, and a long year of three hundred and sixty-five days. The month they divided into three parts, beginning, middle and end, each of ten days. The day was divided into twelve hours, and subdivided into three periods of four hours each, a similar division being made of the night. From this, probably, the Romans took their division of the day and night into watches. Intercalary days completed the solar year, a device used also by the Romans.

DIVISIONS OF DAY AND NIGHT

Many peoples reckon by nights, instead of by days, and many begin the "day" with sunset, instead of with sunrise or, like us, with midnight. Various subdivisions of day and night are recognized by different peoples. Thus, with the ancient Chaldeans and modern Greeks day begins at sunrise; with the Italians and Bohemians, as with the Hebrews, with sunset; with the ancient Egyptians at midnight—whence our beginning of the day. Like the Egyptians, the Greeks divided the day into two parts of twelve hours each. The duodecimal system of counting time suggests, however, Babylonian origin, and this is in keeping with the borrowing from the Babylonians of the sun-dial, meridians, and our subdivision of hours.

The hours of dawn and of twilight often receive special attention. Ancient Greek employs a word, *lunophos* ("wolf light"), for the period of the day following sunset, when one cannot distinguish between a wolf and a dog—prior to the deeper gloom when "all cats are gray." Early dawn is referred to in modern Greek as *charagei,* which means "splits."

The Saxons divided the night into seven portions: evening gloaming; from the gloaming and the appearance of the evening star until the silent night; the silent night (compare

stille Nacht, in German, referring to a division of the night); midnight; cock crowing; dawn; from dawn until sunrise.

In New Zealand the day was divided into the following portions:

Daybreak (the shadows of morning appear).
Sunrise (the sun mounts).
Forenoon (the sun is on its way upward).
Midday (the sun stands upright as a post).
Afternoon (the sun is tilted over).
Evening (the time of fires).
Midnight (day and night are divided).

As among North American Indians, time was reckoned by nights instead of by days. Thus, they ask a man, "How many nights were you on the road?"

Among the Yorubas the word for "noon" is "day upright"; for "afternoon" is "shadow lengthening." The night is divided into three periods, known as the first, second, and third cock-crowing. The importance of the crowing of the cock is indicated in the proverb, "A large cock crowing in the middle of the night settles the dispute" (as to the time). A similar division of the night based on the crowing of the cock is used by the Bangalas. (Compare Luke xxii:34, Matthew xxvi:34, Mark xiv:30, John xiii:38.)

The Thongas begin the day with dawn, and recognize the following divisions:

Tlhabela sana, the time when the rays of the sun are piercing.
Hisa ka sana (sana means *sun),* when they are burning.
Nhlekanlu, the middle of the sky, or
Shitakataka, the maximum point of the heat.
Ndjenga, or *lilungu,* the afternoon, the time when the sun goes down.
Ku pela, or *ku hlwa,* when it reaches the horizon; or
Mimabayeni, the twilight, literally "the time when you do not easily recognize strangers" coming to your village (because it grows dark).
Busiku, night.

In Bantu, morning is the time "when the rays of the sun begin to pierce"; noon, "when the sun is in the middle of its

course"; afternoon, "when the sea breeze comes up," or "when the sun is going down." There is a name for to-morrow, yesterday, and each of the two preceding days, this year, next year, last year, and the year preceding. Seldom are days or years counted further than this, though the Rongas have names for each of the seven days after to-day.

The natives of Victoria, Australia, refer to the upper crepuscular arch seen in the east at sunset as the "white cockatoo twilight," the under arch being called "cockatoo twilight." These observations provide time distinctions.

Among the Salinans time during the day is reckoned by the height of the sun. Night is irregularly divided into intervals, as darkness, short time after darkness, midnight, and so on, until dawn. The Penobscots recognize fourteen divitions of day and night, such as twilight, early night, etc. The Stlatlumhs of British Columbia have twenty-one distinct words or phrases by which they express divisions of the day, beginning with aurora, or daybreak, and extending to pitch dark. Five of these refer to different periods of the sun's approach from the first appearance of light until full sunrise; eight refer to the coming on of night, beginning with full sunset and extending through evening, twilight, getting dark, night, darkness, to pitch dark. After sunrise there is early morn, midway between sunrise and noon, noon, and similar divisions of the afternoon.

Among the Wahpeton Dakotas of Manitoba day and night are divided in the following way:

OkpasA (dark) from the appearance of the first star until midnight.

Hatco'kA (night middle), midnight till the first signs of daylight.

O'pao (morning light), from first signs of daylight until objects can be clearly distinguished.

Opa (light), from *o'pao* until the sun's warmth is felt.

Wio'taha iki'yeda (near middle sun), from the preceding until noon.

Wio'tAhA (middle sun), until about three o'clock, when the sun's warmth begins to diminish.

Wio'tAso'pa (little past middle sun), lasts (in summer) until about six o'clock, when the sun begins getting low.

Htai'itu (evening or getting dark), from this time until *o'kpasA*.

Sunrise is *wiino'pA*, "sun getting up," and sunset is *wiiyai'yi*, "sun going down," or *wi'yai*, "sun set."

To tell time two sticks are put up, one south of the other. When the shadow from one points to the other, noon is indicated. (But the informant could not explain how the proper orientation is secured.)

The Andamanese divide the period from sunrise to sunrise into thirteen parts. The divisions are vague and frequently they overlap. They use the expression "the full sun" to refer to the middle portion of the day, the period during which the sun is well up in the heavens.

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CHAPTER XXIII

MAGIC

"MAGICAL beliefs and practices are not mere unorganized collections of baseless superstitions, any more than medieval science is altogether incoherent and insane. Both are primitive forms of approach to the study of the world of nature." As Marett has said, "science is but magic controlled by method." Where the one leaves off and the other begins no one can say. The science of to-day is the magic of to-morrow, and things which a previous age regarded as magic we now regard as a commonplace of natural law. "Science is not a tradition, but the essence of progressive thought. The science of one generation is consequently looked down upon by succeeding ones from those very heights of knowledge to which it has helped to raise them. Our own physiological and biological theories will probably appear as quaint to our descendants as do the conceptions in which the infancy of science was swaddled." [1]

But magic in its typical form, magic at its best—or at its worst—is the employment of occult forces, dependence upon supernatural agencies, trust in forces which are not seen by the eye of man and are known, it may be, only to the worker of magic and his confrères.

The use of magical means to accomplish his purpose is one of the characteristics of the savage. Nor has the use of magic been limited to the realm of primitive life. It flourished in antiquity and in medieval times and lingers on in every nook and cranny of contemporary European civilization. The Greeks called the Axine Sea "Euxine," to mitigate its roughness; the Furies they spoke of as "Eumenides," "well-meaning," to flatter and soften them. Until recently medicine was

[1] Robert Briffault, *The Making of Humanity*, p. 197. London, 1919.

mostly magic. The celebrated Boyle, subject to bleedings at the nose, was cured by the application of moss from a dead man's skull. Implications of magic were read into religion. James Mason's *The Anatomie of Sorcerie, Wherein the Wicked Impietie of Charmers, Inchanters, and such like is discovered and confuted,* published in London in 1612, contains the following observation regarding New Testament cures: "And here Saint Paul is reported to have cured them with napkins and partletes. And as for the second we see it cannot be true by common experience: for who cureth now by his shadow only as Peter did. Indeed many of our sorcerers will seem like apes to imitate Saint Paul in this place, sending napkins or cloathes unto those that are sicke: but their working is (as I have said before) by natural means. For it seemeth very certaine in all reason: That by the same means generally, that the divell inflicteth diseases upon man, or beast, he doth expell and drive away the same. Now it is evident by many examples that he inflicteth diseases by naturall meanes: for Iohannes Langius in his 38 medicinall epistle reciteth as history of one Ulricke Neucesser, who being extremely pained in one of his sides, upon a time laid hold of a naile, that lay under the skin there: which naile when the chirurgion had cut out, and the paine nothing allaied, the man despairing of any recovery cut his owne throat, and afterward being opened before his buriall (in the presence of many) by two chirurgions, whom he there nameth: there were found in his belly a long round piece of wood, foure kinnes of steele, partly sharpe, and partly nickt like a saw, and two sharpe instruments of iron, that were more than a span long, and haire rowled together in forme like a ball." The evidence was cited as proof that death was caused by natural means and not by magic alone.

From ancient Peru and Neolithic Europe many skulls have been found which show perforations made during life, in some cases four or five operations having been performed upon an individual. That the individual survived is indicated by the fact that the bony tissue had healed. This operation, known as trepanning, or trephining, was probably performed to release

the spirit of the disease which was deemed responsible for the patient's malady. The remedy is more heroic than the blood-letting practised by our leeches and physicians up to very recent times, but the underlying philosophy is not very different.

According to an Irish legend the great Earl of Desmond, who died in 1583, was a potent magician capable of changing himself into various forms—a hag, a serpent, a vulture. Eventually during his enchantments the entire castle in which he was conducting them sank to the bottom of the lake, taking him and his wife with it.

Irish witches could turn wisps of straw into red pigs. Kafirs say that no one keeps a pet animal save for use in bewitching. In European culture the witch herself suffered punishment when the bewitched animal was burned.

In 1721 a woman of Kirk Lonan, in the Isle of Man, confessed to having taken up earth from under a neighbor's house and burned it to ashes, which she fed to her cattle with the intention of making them give more milk. This would have been accomplished by imparting to them the virtue inherent in the earth trodden by her neighbor's cattle. One can steal a man's luck in fishing by plucking a straw from the latter's cottage as one passes by on a fishing trip. In Denmark, a man who stole another's fishing tackle secured also the power over fish which the latter had.

From the body of a dog the Tungus determine the guilt of the accused. The accused must say, "As the dog's blood burns in the fire, so may what I have drunk (of the dog's blood) burn in my body; and as the dog put on the scaffold will be consumed, so may I be consumed at the same time if I be guilty." Sympathetic magic makes the threatened punishment effective if the accused is guilty.

The Tibetan wears around his neck an amulet, usually in a small metal box. There is magical efficacy in certain prayers and invocations when used to save devotees from being trampled upon by the horse which is ridden over them in the ceremonies of the Saadiyeh dervishes. The Arabic word for magic, *sihr,* contains concepts often connected with magical rites. It is cognate with the verb meaning "to produce illu-

sion," and with *hara,* "to be bewildered," and with *istarhaba,* twice used in Isaiah in the sense of "conjure away," and with the Armenian word *skhroum,* meaning "marvel."

The Moors were much interested in the pocket compass carried by Mungo Park and wished to know why it pointed always in a certain direction. The wily traveler replied that while his mother was alive the compass would always point toward her, and when she was dead it would point toward her grave. This greatly increased their respect for an instrument containing so much magical power, and enhanced not a little their awe of its possessor.

The Moroccan wife has learned to control her husband by having him, unknowingly, eat a small piece of a donkey's ear. When he has partaken of but the smallest piece, thereafter, in his attitude toward her, he will be just like a donkey.

The best brief account of the principles underlying magic is that of Hubert and Mauss,[1] whose views may be summarized as follows:

Magic refers only to social phenomena, such as are applicable to the entire group and not confined to a portion of it. The magician, or medicine-man, is the individual who performs the acts of magic. Magical concepts are the ideas and beliefs which accompany magical acts. Magical rites are the whole system of acts which embody the magic. Magical rites and the whole system of magic are first and foremost traditional. Those in which the whole group does not believe are not magic. Magic must be distinguished from technique, the efficacy of the latter being attributable to mechanical forces producing only a mechanical result. The latter is controlled by experience, while the former is determined by a traditional attitude to which experience gives no new trend. Magic is a traditional act with an efficacy that is *sui generis*—peculiarly its own. Frazer's view of magic as a sympathetic rite is criticized on the ground that religious rites, too, are sympathetic. Thus, when the high priest in the temple at Jerusalem, during the festival of Succoth, sprinkles water upon the altar, holding his arms up above it, he performs a sympathetic rite

[1] *L'Année Sociologique,* Vol. VII, 1902-03.

whose object is to insure rain. Yet such a rite is pre-eminently religious: the agent, the character of the place and of the divinities present, the solemnity of the acts performed, the state of mind of those assisting, leave no doubt as to the religious nature of the rite.

Frazer's distinction that magic acts by virtue of its own efficacy, while religion involves reverence and conciliation, is not sufficient, since often a religious rite has power to constrain a god, and in many religions the god cannot be reached unless the rites be performed without a flaw. Provisionally, the definition of magic given by Grimm is accepted, namely, magic is a species of religion generated by the lesser needs of everyday life; and the continuity of magic and religion is acknowledged. Some elements of magic cults—for example, the rôle of the devil in the magic of the Middle Ages—are modeled on religious cults. The provisional definition taken for a magic rite is: a rite which is not part of an organized cult, is private, secret, mysterious, and verges on the borderland of becoming a prohibited rite.

In the magic of the Middle Ages certain characteristics of a physical nature apply generally to magicians: The iris of his eye gives a reverse image of things. His body throws no shadow. He is given to frequent hysteria or anesthesia. The latter qualities are especially common in women, who owe their success largely to possession of these qualities. With them the magic power rose to its height at the time of the menstrual flow, menstrual blood being employed as most potent for witchcraft. Magic power may attach to an entire class, as to blacksmiths, grave-diggers, barbers, doctors.

Often when one religious denomination supplants another the former priests of the old religion are regarded as magicians. Such, for example, was the case among the Moslem Malays. All Jews were magicians in the eyes of the Alexandrian Christians, as in those of the Churchmen of the Middle Ages. There is a tendency to regard strangers as magicians and to fear them accordingly. When two cultures are in contact, magic ordinarily is attributed to the inferior; for the Hindus, the Dasyus, for the Scandinavians, the Finns and the

Lapps, were charged with magic power. Wandering tribes or peoples pass readily for magicians, as contrasted with the sedentary: such, for example, are the itinerant castes of merchants or blacksmiths in India, and the wandering Arabs or Gypsies.

The magician is the subject of myths and sayings which give him a character very different from the real personage and to him are attributed powers of which he is unconscious and uses, if at all, unwittingly. They invest him with a halo of romance and mystery that increases popular respect and adds virtue and force to every faculty and activity—a movement of the hand or a glance of the eye conveys the power with which prepossession and conviction in the popular mind have invested him.

A common feature in the making of magicians is withdrawal from the lay world and communication with supernatural spirits or forces whence the magic power comes. Often this is accompanied by complete change of personality, including new name, new knowledge, sometimes new viscera, and a new attitude toward the world.

The language of the magical ritual often is a dead language or one not understood in the community: in ancient Greece, Egyptian was used; in Rome, Greek; in the Middle Ages, Latin. Such a language answers best the demand for mystery and suggests the realm of the supernatural. In all magic, the individual works with social phenomena, but he works as an individual.

Though the types of magic are of widely varying sort, much of it may be brought under a few simple categories. The two main classes are sympathetic—sometimes called mimetic, or imitative—and what we may designate as holophrastic, in which a part represents or does duty for the whole.

Sympathetic magic is based on the belief—usually an unformulated one—that an action or thing is influenced by a like action or thing. Thus the Malay makes a wax image of a person whom he desires to injure, then slowly burns it, uttering some such formula as: "As the wax of this image melts, so may the life of So-and-so pass out of him." Or he may

stick pins in it, saying, "As these pins enter the head of this image, so may pains enter the head of So-and-so." The same fundamental idea underlies our practice of burning a person in effigy, wherein personification adds to the meaning of the rite. We may laugh it aside—but who wants to be burned in effigy? Mimetic magic is again seen in the ceremonies designed to induce rain. Whether performed on the deserts of Australia or on the plateaus of the Southwest of the United States, the ceremonies contain elements which imitate the conditions desired. There is symbolic representation of the gathering of clouds, the fall of rain, and in some cases of the zigzag lightning which accompanies rain. In other regions beating on a drum will induce thunder. Jumping high in the fields makes the grain grow higher—so at least peasants in Germany and in central Europe believe.

Holophrastic magic makes part do duty for the whole, because, by association of ideas, the part calls up the whole. If you secure part of a man's clothing, or of his person, such as hair, nail paring, or even some of the food which he has left after a meal, you are able to work magic upon him by means of these articles. You cannot see or think of his hair without seeing or thinking of him, and the thought of injury to the hair is followed by thought of injury to him. Reality is confused with mental picture.

In much of the realm of savagery, moreover, there are subtle pervasive forces which provide the undercurrent for magical practice. Thus the Melanesian speaks much and thinks much of *mana*. *Mana* is a pervading force which brings a man good or ill. It is impalpable, sometimes personal, sometimes impersonal. Yams grow large and abundantly because of the *mana* of the owner, or because a stone containing *mana* has been planted along with them. Powerful men have more *mana* than weak ones, and the powerful in this world become in the next world ghosts resplendent with envied *mana*.

So with tabu, which some call "negative magic." By means of tabu, or *tapu,* the Polynesian protects his house or his crops. The head of a chief is tabu. To touch or inter-

fere with that which is tabu is to invite supernatural punishment of impersonal origin. Tabu has efficacy in itself and needs no further reenforcement.

The *orenda* of the Northern Iroquois has the merits of both *mana* and tabu. By means of it the mighty and the mysterious are accomplished. A man obtains *orenda* from objects or animals which possess it. It radiates from object to object, and from object to person.'

Strikingly like the Algonkian *orenda* is the Siouan *wakan.* The eagle has *wakan,* because it can soar higher than any other bird and for a longer time without moving its wings; the owl has *wakan,* for no other bird, like it, can see in the night or dares to prowl about in the darkness; the spider has *wakan,* for it can walk on the water as well as on the land, and can walk down in the air backward (on its "rope"). The sacred, the holy, the forbidden, the powerful, the dangerous, the mysterious, are *wakan,* or have *wakan.*

Finally, as an example of magic force we may cite the Micmac conception of *keskamzit.* A boy when cutting wood saw on some of the chips the letters of the alphabet. He had not been to school and no one had taught him to read; yet from that time he could read, for he had *keskamzit* for reading. An old man pulled up on his fishing net a flat stone with varicolored veins on the flattened side, in which one could fancy the representation of a human face. The finder ever after had *keskamzit*—good luck beyond the explanations of mere chance. A young man visiting his traps found in one snare two squirrels. No one catches two squirrels in one snare—it does not happen. This man would have had great *keskamzit* for hunting had he not related the adventure —to relate it is to lose the magic virtue.

In many societies there are organizations of medicine-men, or shamans, or a distinct status is assigned them. Shamans are most powerful in the northeastern Siberian tribes, among the Eskimos, in the Southwest of the United States, in Australia, and in parts of Africa. In some cases they work at cross-purposes, but usually they are recognized as persons of

social utility and importance, to be consulted in time of war, pestilence, famine, or other danger.

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CHAPTER XXIV

AMULETS AND CHARMS

THE preceding chapter contains several instances in which magic power is regarded as resident in an object or as adhering to it. The term *amulet* is applied to an object, carried or kept, to which magic power is attributed. "Charm," cognate with *carmen,* "song," originally referred to a song or chanted formula possessing magical efficacy. A "charm" often accompanied the use of an amulet, and the name of the song was applied to the amulet, so that "amulet" and "charm" came to be used interchangeably.

The magical efficacy of a widely distributed type of amulet depends upon the unusual nature of the object which does service. It may be a stone, a piece of wood, a root, a plant, a mineral. A round and well-polished river pebble in a region where these are rarities is apt to be highly treasured and regarded as having mystic potencies. One striated in unusual manner, in the veins of which is traced a fancied resemblance to some animal or object, or one the shape of which suggests an object, animal, or plant, commonly is used as an amulet. Unusual shapes of roots or plants gives them this attractiveness. The mandrake root, because of its resemblance to a human being, is valued; so are seeds which resemble the pupil of the eye; excrescences which resemble plants or animals are treasured as charms.

Parts of animals constitute another important class. The feathers of the eagle are useful because they partake of the power and vigilance of the king of birds and impart the virtue of this bird to the wearer of its feathers. The claws of the bear are valued because the bear has power to tear terribly with the claws.

Inscribed amulets have protective force, because of the inherent power of the written word. The Moor and the

Arab drink dissolved verses from the Koran. The Japanese find protection in framed mottoes hung on the walls of houses; the Chinese hang pious wishes in the houses or inscribe them above the door. In Christian lands a sacred design, such as the cross, imparts mystic protection. In Abyssinia on parchment rolls are written legends, spells, words of power, sacred signs, and other devices which make the charm effective.

Imitation is another common device embodied in the amulet. Imitation of the eye protects against evil eye. The crescent, suggesting the outline of the eye, is an almost world-wide device for protection against evil eye. The image of a snake protects against snakes, that of a fish enables one to secure fish, and so on, the amulet sometimes being used as protection against the original which it represents, sometimes attracting the original; how it works depends largely upon the wish of the possessor. In savagery wishes are horses, and beggars, at least witches and shamans, do ride.

Among the Eskimos amulets consist principally of things which have an inherent virtue by reason of previous association. A hawk's head or foot makes a boy a good hunter, because the hawk is a good hunter; the black guillemot is quick at catching cod, and so will be the man in taking whales or narwhals if he wears a guillemot's foot.

Among Algonkins the virtue of the amulet often arises from its unusual character. The Micmacs have numerous objects which afford *keskamzit*. A man found a stone resembling an otter. He put this by without telling anyone of it, and had *keskamzit* for otter. A woman who found on a tree an excrescence having the resemblance of a human being carefully preserved this, making for it a head-covering and a cradle, and regarded it as *keskamzit* for child-bearing.

In the Plains area many a useful object has magical value. The shield of the warrior possesses magical power by virtue of designs upon it or articles pendent from it, such as eagle feathers or bear's claws.

In the Northwest and adjacent territory parts of animals were frequently used in the making of charms. Attached to

fish-nets were the claws or feet of birds, otherwise the nets would catch nothing.

In the Southwest the amulet often was practically a fetish. Rites and ceremonies were commonly associated with it. In Mexico translucent stones were valued for their magic.

In the West Indies the natives used representations of the human form, or effigies of animals. The Peruvians wore necklaces of puma teeth, human teeth, bones of monkeys, or birds' beaks. In southern Peru and in Bolivia tapir's claws prevent sickness, and the teeth of poisonous snakes ward off headache or blindness.

In Mexico papers placed with the dead suggest similar documents in the graves of the ancient Egyptians. They contain written prayers or magical formulæ designed to ward off from the soul the dangerous spirits met with on the way to Hades. From time immemorial the Nahua used talismans of hard polished stone, such as are carried to this day by the Indians of Central America. These they employed as oracles. In them were reflected, on the polished surface, future events.

In Japan amulets are employed by the majority of people, sometimes objects carried on the person, sometimes left at a house or other place to protect it, sometimes written formulæ, especially in or on houses.

In Assyria and Babylonia the written charm was potent. Often it was accompanied with a prescribed ritual. So, too, in Egypt. Certain emblems had magic power and were commonly portrayed in the tomb.

Many Hebrew ornaments seem to have had their origin as charms, particularly those designed to protect the orifices of the body against the entrance of evil demons. Among the Jews the amulet was in common use. Here the "Name" and the sacred formula were accounted of much avail.

Mohammedans, too, find salvation in written verses from the Koran, sometimes taken in decoctions in which the writing has been dissolved; and they make frequent use of the names of Allah. According to tradition, there are ninety-nine such names—the Great, the Good, etc.

Among the older and higher civilizations of India charm and amulet are almost inseparable features of everyday life. The Mantra, or spoken charm, an almost necessary part of every domestic ceremony, accompanies every Hindu religious rite. Amulets are made of various things—portions of trees, grains of various cereals, seeds of plants, portions of animals, common and precious stones, beads, metals, coins, or other objects.

In Iran, efficacious prayers or conjurations against evil spirits were much used. Such prayers are found in the *Avesta,* the ancient sacred writings. Many ancient Vedic charms were seized upon and adapted by the Tibetan Buddhists. Inscribed charmed sentences or letters are common.

In Vedic practices an amulet bestows long life, guards its owner from diseases and demons, the charms of hostile sorcerers, and the attacks of human enemies, and thus bestows the prosperity without which long life would be unendurable. Every investiture with an amulet involves an elaborate religious or quasi-religious ceremony. Many of the hymns ascribe to the amulet a superhuman origin, or recount the wonderful achievements of the gods. Some is sympathetic magic, some is magic in the guise of religion. Even the tying on of the amulet is an elaborate ceremony. It is steeped for three days in a mixture of curds and honey; an oblation of *ghi* is next offered by the priests while they recite the required hymn. The person for whom the ceremony is performed stands behind the priest, who touches him with the blades of darbha grass, and the leavings of the oblation are placed upon the amulet, which is then blessed with the hymn. The priest then ties the amulet upon the man, generally upon his neck, and gives him the curds and honey to eat. Frequently the tying on of the amulet is but one of a series of rites. Against diseases splinters from ten holy trees are employed. At the wedding ceremony the bridegroom ties on his little finger an amulet of licorice to make himself agreeable to the bride. The string must be colored red with lac, and a knot made on the inside of the hand. Salve is employed as an amulet to secure long life. A spearpoint furnishes an

amulet against various sharp pains ascribed to the missiles of Rudra.

Christianity, likewise, has its quota of amulets. Nails from the Cross, or a piece of the Cross, have magical virtue as well as religious sanctity. An ancient legend relates that Saint Helena had the nails from the true Cross made up into the bridle and stirrups of her son Constantine, to serve as talismans; and that, too, for a profane purpose. On the death of a revered monk in Byzantium a struggle ensued among the populace for possession of his cloak and even for his teeth and hair, desired as talismans.

The Slavs employ as amulets many vegetable substances, as well as stones of various sorts. Even fabulous objects serve. In this class are the serpents' horns, "eagle stones" (stones alleged to have been found in an eagle's nest), and the fabled horn of the unicorn. Three of these horns were purchased by the Czar Alexej Michailovic, in 1655, for the sum of 10,000 rubles. The knot is frequently used to bind one's enemy or his hostile actions. Incantations accompanied with a ritual are common. One against fleas, bugs, and insects is as follows: "Fleas, bugs, beetles, and all such creatures, behold, I come to you as a guest; my body as bones; my blood, as pitch; eat moss, but not me. My word is sure. Key. Lock. Amen, Amen, Amen."

Many kinds of amulets were used by the Celts. The statues of the Celtic god with the wheel probably belong to this class. The pagan gods are still appealed to in the charms used by Christians.

Classical culture is rich in charms and amulets. Many amulets owe their virtue to the place in which they were found. The famous Greek athlete, Milon of Kroton, rendered himself invincible by means of stones the size of a pea, found in the stomachs of cocks; a stone found in the stomach of a hen gives soldiers courage and insures victory. Such stones are greatly valued in China and in southeastern Asia.

The Romans were familiar with rain charms and love spells. In malevolent magic the evil eye figured prominently. Exorcism was commonly practiced, the evil often taking the

form of the demon of disease. Safeguards were had against impending dangers by the use of articles recognized as possessing protective virtue. The prevalence of this form of magic among the Romans is typified by the number of terms signifying "amulet" which are found in the language from the very infancy of Latin literature.

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CHAPTER XXV

RELIGION

RELIGION is widespread and deeply rooted in human nature. It has flourished in all places and through all periods of human history.

But if we are to approach the matter anthropologically we must not confuse religion in the large with any especial brand of it. The pretensions of the devotees are one thing, their validity is another. As anthropologists we are not concerned with matters of validity, but with verbal and ritualistic expressions of the religious consciousness.

THEORIES OF THE ORIGIN OF RELIGION

The most important theory of the origin of religion is the famous one of animism elaborated, though not originated, by Tylor. Animism assumes that belief in spiritual existence is the fundamental element in religion. Tylor believed it was also the first to appear in religious development. His theory has at least the specious support of all civilizations, for everywhere the fact of spiritual existence is accepted.

Marett points out that animitism may have preceded animism, though he does not insist on a stage of animitism as chronologically prior to one of animism. By animitism Marett means the attribution of supernatural force or power to material objects without of necessity attributing to them a spiritual existence. One may make an offering to the wind without believing that a spirit actuates it.

Closely bound up with animitism and with animism is magic—the occult and mysterious. In primitive thought the one is easily confounded with the other. The savage is not so much religious as magico-religious. He believes in spiritual forces but he believes also in powerful non-spiritual forces. Out of the magico-religious comes a more definite special-

ization of the two. When man propitiates he assumes a religious attitude; when he resorts to compulsion, trusting to his own devices, he is a medicine-man.

Frazer presupposes a primitive world of magic in which there is no religion. The failure of magic paves the way to religion and the priest succeeds the medicine-man. Closely bound up with these theories is the theory of fetishistic origin. Through reverence for the fetish, man learns to worship and becomes idolatrous. Another presumed origin—there is no paucity of presumptions—is totemism.

That religion originated in nature-worship is an early theory which recently has received less support than any of the above mentioned. The theory arose out of the importance of groves, mountains, rivers, chasms, grottoes, in Greek and Roman civilization. Personification of nature or of phases or forces of nature plays an important part in Greek and in Roman religious life, more particularly in early development. That they stimulate religious consciousness is a view put forward by Seneca:

"If a grove, abounding in old and singularly lofty trees, and, by the density of its branches spreading above each other, excluding the view of heaven, is presented to you, the stateliness of the wood, and the silence of the place, and the admiration of the shade so close, and so continuous, in the extended atmosphere, inspire a certain feeling of devotion. If a cavern, the rocks being entirely decayed, and hollowed extensively, not by human labor, but by natural causes, vault the mountains, it strikes the soul with religious awe. We venerate the sources of great rivers; altars have been erected where a vast stream suddenly bursts from its hidden origin; hot springs are consecrated; certain lakes have, on account of their immense depth or opacity, been viewed with sacred reverence." Nor has this reverence for natural forces been confined to Greeks and Romans. It is found among many peoples. Not uncommonly the tops of high mountains are holy places, large rivers are sacred, large rocks are shrines or altars.

Euhemerus put forward the theory that religion has its

origin in worship of the dead, a theory supported by Spencer and by Grant Allen. The sacredness of temples, groves, and other places is derived from association with the dead who are buried there and are reverenced or worshiped.

Others find the origin of religion in fear. *Primos in orbe deos timor fecit,* says Lucretius. (Fear created the first gods). Man stands in awe of those overpowering forces which are beyond his ken, and those with which his puny strength cannot cope. In fear and humility he worships. The fear of God is the beginning of religion and the motive for its perpetuation.

Again, the origin of religion has been found in mystery. Things and events which defy man's powers of analysis inspire reverence and respect. Closely linked with this is the theory that the unusual evokes religious sentiment. As long as the world proceeds in the even tenor of its way man accepts it in matter-of-fact manner; when it seems to be out of joint, to go willy-nilly, to obey no fixed law, to be subject to no observable regularity, man stands hopeless and terrified. The catastrophic is of this nature and elicits fear and reverential response. So are those non-human supernatural forces, like hurricanes, ghosts, will-o'-the-wisps, comets, eclipses, earthquakes. Man fears the supernatural more than he fears a natural danger which he clearly comprehends. The savage is not frightened by an overwhelming array of spears and bows and arrows, but a ghost frightens the life out of him, and he runs from a will-o'-the-wisp as long as there is breath in him. The living he does not fear, the dead he dreads. When his intellectual categories break down, the way to religion is paved.

Durkheim attributes the origin of religion to group attitudes. The group assumes attitudes toward certain things or ideas, usually employing ceremony and ritual, defining for us a world of the sacred. This is the realm of religion, distinct from that other world toward which the group takes no such ceremonial attitude, the world of the profane. Thus group action is the generator of religion.

Whatever value we attach to Durkheim's theory as an

explanation of the origin of religion, there is no doubt that group attitudes have much to do with the perpetuation of the religious consciousness and with its content and meaning. They are responsible for the symbolism which plays so large a part in many primitive and advanced religions. They bring into existence likewise a realm of religious facts.

RELIGIOUS FACTS

Religious facts belong in a realm of their own, distinguished from the profane by quality and by degree of difference, if not by absolute differences. They are marked off from the profane by their surety and inevitableness, by their superhuman sanctions, and by the manner of their justification. The old theological controversy about knowledge and faith, reason and faith, the "I believe because it is absurd," are evidences of a dichotomy which runs through life when religion enters.

As a religious man an individual may believe in transubstantiation, while as a chemist he may assume that there is no change of atoms. Primitive man as well as civilized man is capable of this feat at the price of intellectual harmony between two inconsistent attitudes, usually too inconsistent to be harmonized.

RELIGIOUS FORCES

Religious forces are characterized by their ubiquity and penetration, defying time, space, and ordinary obstructions and limitations, and by their comparative independence of human control. Often they are embodied in the word or name: "In the beginning was the Word." "God said." "Thou shalt not take the Name of God in vain."

More important than the name is the formula. The *Mantras* of the Hindu contain a virtue inherent in their utterance. The virtue inherent in the formula makes efficacious the prayer which embodies it.

Recite the verse, and the accomplishment follows of necessity. The power of blessing or curse often is dependent upon a formula the efficacy of which is lost if it is not correctly

rendered. Once given, it cannot be recalled, even though given through misunderstanding or under deception, as when Isaac blessed Jacob, thinking he was blessing Esau, the deceiver being automatically rewarded.

One of the means of obtaining the religious force, sometimes a force itself with an inherent efficacy, is prayer. Though prayer is not absent among primitive peoples, it plays a comparatively unimportant part in religion at this level, being much more prominent in the higher cultures.

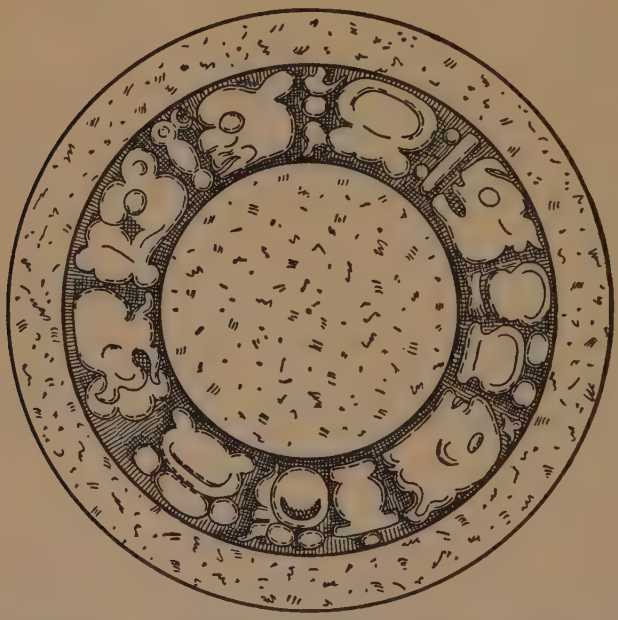

Fig. XXI.—A Circular Altar Stone from Ancient Mexico.

An example of prayer in a primitive life is the Hidatsa prayer by a father for his son: Opening his medicine bundle, the man removes an object which he has seen in a vision, and burns incense. He raises the image over the smoke and sings. He addresses the sacred object, requesting it to preserve his son from danger.

The Lumpwood, a Hidatsa military society, pray to the buffalo for good luck. Among the Mandans a man prays to the supernatural powers: "I have gone through the *Okipe*

ceremony myself and have undergone great hardships for your sake. In other ceremonies I have also undergone suffering. Before I underwent this suffering I thought you would help me whenever I could not do something by my own power. I have no power to give honor marks, therefore I ask you to help me by securing honor marks for my son."

The Wahpeton Dakota prays to a stone which he possesses and which he believes contains great power. A typical prayer of the Crow begins: "Hallo, Old Man! I am poor! You see me. Give me something good. Give me long life; grant that I may own a horse, that I capture a gun, that I strike a blow against the enemy!"

The following is the prayer of a Plains Cree given after the erection of the poles of the tipi: "To-day is the day I put up my home. I leave you to the care of the four winds. To-day is the day you see yourself in my lodge, where you can do as you please. We cannot tell you to do this and that; we are only men. You, our Maker, direct us whether it be bad or good; it is your will. Help us to think of you every day we live in this lodge; guard us in our sleep; wake us in the morning with clean minds for the day, and keep harm from us."

OFFERINGS AND SACRIFICES

When the Lagas lagoon, in Dahomey, is swollen by rain and overflows its banks, Olosa is angry. If the inundation is serious, a human victim is offered to her to induce her to return within her proper limits.

In the early days of the world, says a Yoruba tradition, the gods were obliged to have recourse to various pursuits in order to obtain food. Ifa, who was in the same straits as the other gods, took to fishing, with, however, but small success; and one day, when he had failed to catch any fish at all, and was very hungry, he consulted the crafty Elegba, who was also in want, as to what they could do to improve their condition. Sacrifice from mortals solved the problem. Here, as among the Ewe, the rite of circumcision is connected with the worship of Elegba, and "appears to be a sacrifice

of a portion of the organ which the god inspires, to insure the well-being of the remainder." However that may be, sacrifice is the most important part of ceremonial worship, and no god can be consulted without it, the value of the offering varying with the importance of the occasion. Besides the offerings thus made for special purposes, or on special occasions, persons who are the followers of a god—*i.e.*, those who wear his distinguishing badge and are believed to be under his protection, make, as a rule, daily offerings of small value, such as a few cowries, or a little maize flour, palm oil, or palm wine. On important occasions the priest designates

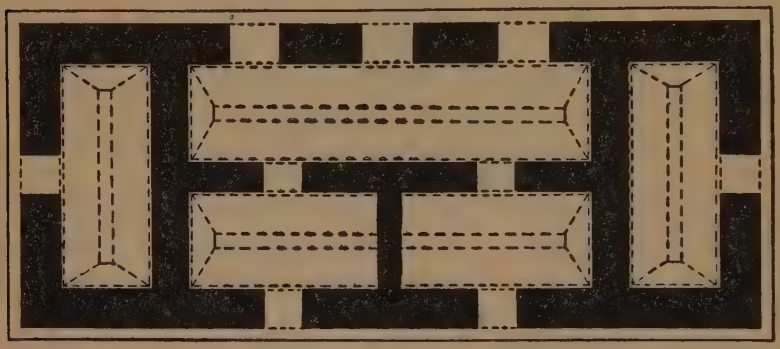

FIG. XXII.—GROUND PLAN OF A MAYA TEMPLE AT YAXCHILAN, MEXICO.

There were probably five rooms, each extending throughout the length of the building.

to the suppliants the sacrifice necessary to induce the god to lend a favorable ear. He begins his address by flattering the god, dwelling upon his fame and power, declaring his humble suitors entirely dependent upon his good will. Then he calls attention to the self-abasement of the god's faithful followers, "So-and-so," and to the value of the victim which they have brought him, and begs him to be propitious and listen to their humble prayer. He then sacrifices the victim, sprinkles some of the blood on the image, pours the remainder on the ground, and places the head and entrails in a shallow earthen vessel in front of the temple.

The market of Wuru was under Elegba's protection. Each vendor threw a few cowries on the ground as a thank-offering.

Once a year the cowries were swept up by the priests; with the sum thus collected a slave was purchased and sacrificed to this god. In the town of Ondo a slave was sacrificed annually to Elegba. On the first day of the Yoruba week, a day sacred to Ifa, sacrifices of pigeons, fowls, and goats are made. No one may perform any business until this duty is carried out. On very important occasions a human victim is immolated.

The usual sacrifice offered to Ogun is a dog, together with fowls, palm oil, and minor articles of food. "An old dog must be sacrificed to Ogun," is a proverb, meaning that Ogun claims the best. A dog's head, emblematic of the sacrifice, is fastened up in a conspicuous part of the workshops of blacksmiths.

The body of a deceased person, after being laid in the grave, is sprinkled with the blood of a male goat sacrificed to propitiate Elegba. The deceased is called three times by name and is adjured to depart and no longer haunt the dwellings of the living. After this invitation to be gone, a fowl is sacrificed. It secures a right of way for the soul and guides it. The feathers of the fowl are scattered around the house, and the bird is carried out to the bush road, where it is cooked and eaten. The road on which the fowl is eaten must be outside the town and lead away from it, for, though the natives believe that Deadland is under the earth, they think that it is necessary to eat the fowl on a road leading into the bush, in order to place it in a proper position for commencing its office of guide to the soul. After sacrificing the fowl a priest inquires as to the cause of death. Should the oracle further declare that the soul of the deceased is still in danger from molestation by evil spirits, a sheep or a goat is sacrificed, and the carcass, sprinkled with palm oil, is carried outside the town. Before the grave is filled up a goat is sacrificed to the deceased and wishes for his safe journey are expressed. A boy in search of his mother made his way to Deadland after the sacrifice of a sheep. His mother bade him make frequent offerings to her, adding that she needed them much.

Funeral rites cannot be performed at the moment the breath

leaves the body; but as an earnest of their intention to perform them and to prevent the evil spirits from seizing the ghost, the relations at once offer a sacrifice to propitiate them, a fowl being offered when the corpse is buried. It is not uncommon for newly married couples to visit a celebrated shrine and together offer sacrifice. As the Greeks offered sacrifices at the cross-roads to Hecate, goddess of night, so, in order to avert an impending calamity, the Yorubas sacrificed at cross-roads, or at a point where several roads meet. When, by sacrifice of a fowl, sheep, or in exceptional cases of a human victim, a house or an inclosed yard has been placed under the protection of the god Shigidi, he kills those who injure the building or trespass there with bad intentions. Certain animals, for example, the turkey-buzzard, vulture, and gray parrot, are unclean to all the gods. A tradition explains this by saying that when the animals were told to offer sacrifice these three refused.

The following proverbs of the Yorubas indicate the importance and significance of sacrifice and offerings:

A water fowl is not fit for the worship of Ifori. (Ifori is the guardian spirit of the great toe. When a man is about to set out on a journey he anoints the great toe with a mixture of fowl's blood and palm oil.)

The cross-roads do not fear sacrifices.

No sacrifices are made to God, because he needs nothing; but the *orisas,* being much like men, are pleased with offerings of sheep, pigeons, and other things. (Which Ellis explains: "They propitiate the *orisa,* or mediator, that he may bless them, not in his own power, but in the power of God.")

If one has not an *odau* (large bat), one sacrifices an *ode* (small bat). (That is, do your best.)

The Thongas sacrifice fowl. Before going to war, however, the entire army is summoned to the capital. A bull is brought out before the assembled soldiers and the chief strikes it on the head with a stick. This infuriates the animal, which must be caught and thrown down by the men unarmed; the chief then approaches and kills it with an ax. They dismember the carcass, cutting off the flesh in strips, which they

cook in a large battered pot, stirring it with their assagais while they pour into it "the medicine of hatred." They sacrifice a goat to "kill kinship"—that is, to make possible and legal a marriage between two people so related as normally not to be marriageable. Among the Kafirs of Natal a soldier wounded in battle prays if his hurt is slight, but if serious vows a sacrifice on his return, perhaps indicating the kind of animal he will offer.

To insure the maintenance of the powers of nature, particularly of fauna and flora, the Iroquois sacrifice a white dog. The buffalo meat eaten at the feasting ceremonies of the Osage secret religious society is a sacrifice to *Wakanta*. The folk tales of the Winnebagos contain a reference to the sacrifice by parents of their child to Earth-maker. According to an old account, the Iowas hung dogs by the neck to trees or sticks as offerings, presumably to *Wakanta*. The Omahas also sacrificed white dogs, and sacrifice of dogs was practiced by the Dakotas. The Takelma deposited at localities identified with particular spirits offerings of food and other valuables.

The Todas devote buffaloes to the gods. When a man gives a buffalo in this way it means that he undertakes not to give or sell the animal to anyone and not to kill it at a funeral. The buffalo is to be allowed to die a natural death, but so long as it lives the owner has the use of its milk. These offerings are propitiatory, designed to bring about the removal of a misfortune, whether caused by one's own sin or by that of others. A man gives a buffalo to a *ti* when he has committed an offense against the *ti*. In one case the occasion of the offering was the refusal of the man to become *palol* after he had promised to undertake the office. One result of Rivers' visit to the Todas was the sentence that the people as a whole must make such an offering. At one of the ceremonies a male calf is killed and eaten as a sacrifice, one being killed in order that the rest may prosper. Certain parts of the animal are eaten by the dairyman and by other men, but are tabu to the women, while other portions may be partaken of by all indiscriminately.

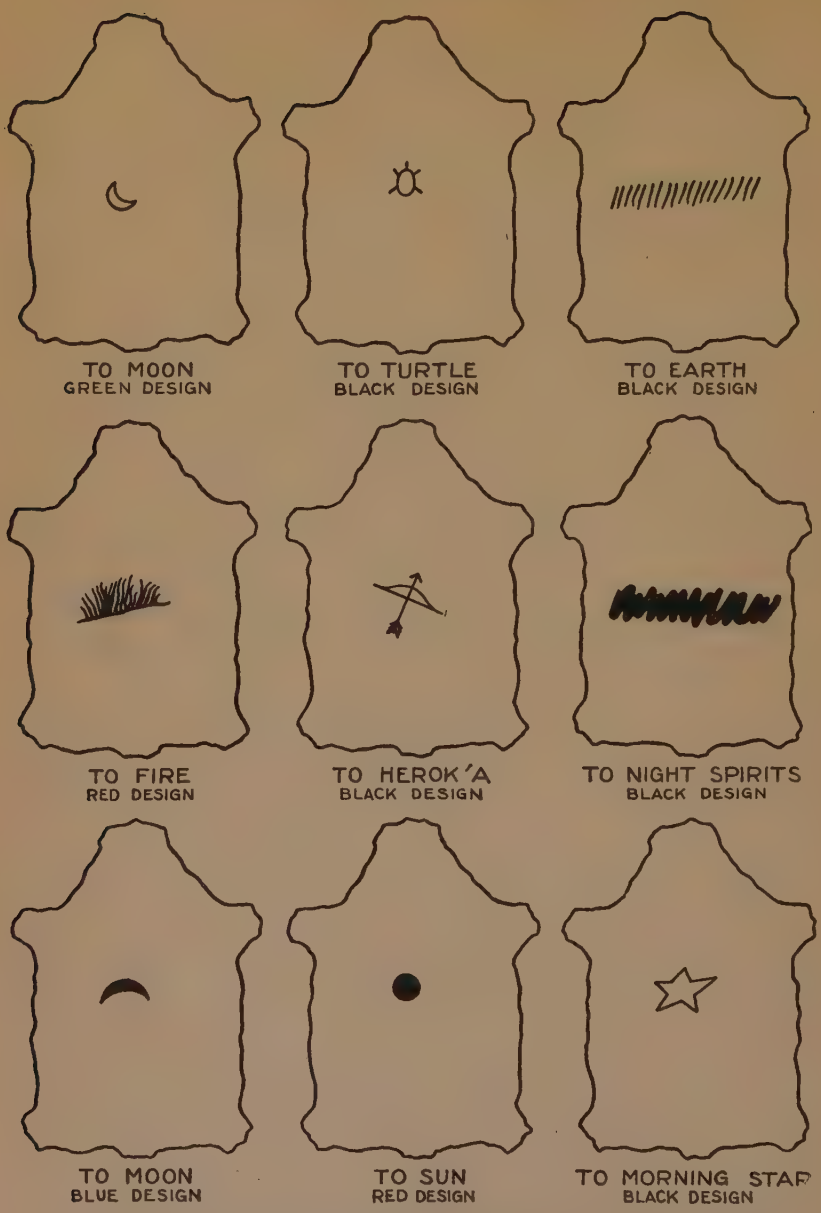

FIG. XXIII.— WINNEBAGO OFFERINGS OF BUCKSKINS TO VARIOUS SPIRITS.

There is an appropriate color and figure for each spirit.

HUMAN SACRIFICE

Human sacrifice is alleged to have existed among the Iroquois prior to the white dog sacrifice. It was practiced on the Northwest Coast at the sinking of the foundations of clan houses, when slaves were killed. Human sacrifices were offered by the Aztec.

Human sacrifice is common on the west coast of Africa. Among the Binis three great chiefs possess the right to sacrifice human beings. Among the Ewe tribes the usual sacrifices to Elegba are cocks, dogs, and male goats, chosen on account of their amorous propensities, but on very important occasions a human victim is offered. After the head has been struck off, the corpse is disemboweled and the entrails are placed in front of the image in a large calabash or wooden dish; after which the body is suspended from a tree, or, if there is no tree at hand, from a scaffolding of poles. Turkey-buzzards devour the entrails of victims and their bodies, this being the reason, no doubt, why these birds are sacred to Elegba and are regarded as his messengers. In Ashanti, prior to battle, offerings are made before the skull of a deceased chief and the potency of his ghost is invoked. Here and in Dahomey periodical human sacrifices are made on the tombs of deceased kings.

To place a house or an inclosed yard under the guardianship of Shigidi, the Yorubas dig a hole in the earth and slaughter a fowl, a sheep, or, in exceptional cases, a human victim, the blood being drained into a hole and then covered. In time of need human sacrifices are made to Olum. To Olori-merin an infant, not more than three or four days old, is sacrificed every three months. The throat of the babe is cut by a priest, and the blood caught in a calabash or earthen vessel and placed on the summit of a mound. The mother must be present. This sacrifice is called the "season of blood." In important temples, and in the houses of kings, chiefs, and men of high rank, a tall drum is kept. Usually it is covered with carvings representing animals, birds, and the phallus. The drum is beaten only at religious rites and

public ceremonies, a portion of the blood of the victims immolated being sprinkled upon the symbolic carvings, upon which palm wine, the yolks of eggs, and the feathers of sacrificial chickens also are smeared. The offering is made to the protecting spirit of the drum—that is, the spirit of a slave who has been sacrificed on it.

On important occasions a human victim is offered to Ogun. As in the case of a sacrifice to Elegba, the entrails are exposed before the image and the body is suspended from a tree. The head of the victim is struck off upon the stool of Ogun, over which the blood gushes. The blood is the vital principle. In Ibadan the people were averse to human sacrifice, yet recognized its importance and paid the priests of Ifa to sacrifice for them a slave in that town. At any great mishap, such as the rolling down of huge masses of rocks, or a landslide, the Yorubas offered up a human victim to turn away the anger of Oke. The body of a man sacrificed to the sea god Olokun is thrown into the sea; the body of one sacrificed to Olosa is thrown into the lagoon. At Abeokuta there was an annual human sacrifice known as "basket sacrifice." The victim was inclosed in a long basket, as in Dahomey, whence perhaps the custom was adopted, thrown down from a height, and dispatched by a mob armed with clubs. It was a national offering, but often when times were prosperous the victim was spared and was dedicated to a god, whose temple slave he then became. At Ikoradu there was an annual sacrifice of one human victim, and at Ikriku a similar offering every sixth year to the god Ogun.

Human sacrifice was common in New Zealand. In the Society Islands children were sacrificed to the sharks infesting the shores. Human sacrifice flourished in Tonga and in Otaheite. In the latter a victim among the lower classes was decided upon and suddenly attacked and killed.

It has been said that one of the most noteworthy features of savage and barbarian as opposed to civilized society is the relative unimportance in the former of the individual as compared with the community, as shown, for example, by the various forms of human sacrifice which apparently shock

no one. But human sacrifice is seldom if ever found in the lower stages of savagery, characterizing rather the higher stages, the more advanced barbarisms, and semi-civilizations. It was a feature in most of the older Mediterranean cultures. The practice of female infanticide among the ancient Arabs may be a relic of the time when children were sacrificed, and the sacrifice of a sheep soon after the birth of the infant may be a later substitute. The offering up of Isaac may

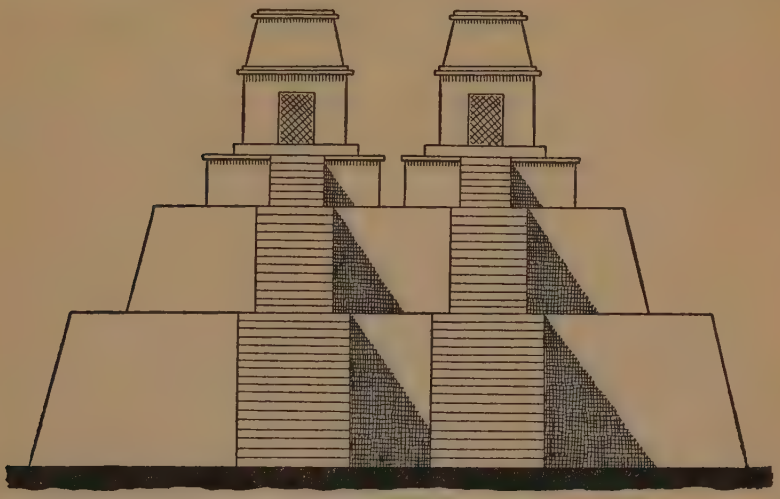

FIG. XXIV.—A DOUBLE MAYA TEMPLE AT EL CHILE, MEXICO, AS IT PROBABLY APPEARED WHEN INTACT.

Each temple had one room and only one entrance. Stairways in three sections lead to the various platforms of the respective temples.

be a survival of a time when the Hebrews practiced human sacrifice, as their Canaanitish neighbors are known to have done, for it was common in ancient Palestine, notably among the worshipers of Ba'al. It was practiced in ancient Egypt, in which country the custom of offering a sacrifice to the rising waters of the Nile lingers in ceremonial observances among the present-day Egyptians. It was practiced in Crete and in ancient Greece, and was known to the early Irish. Like slavery and war, it has been one of the accompaniments of human progress.

Sacrifice has been interpreted by Hubert and Mauss as a

means of getting into communication or *rapport* with the god. The god is surrounded with circles of mystic power which involve the idea of danger along with that of sanctity. It is necessary to break down these circles of tabu. The rites of sacrifice accomplish this, admitting the devotee by stages, through circle after circle, into the presence of the god, where safety is secured by the sacrificial processes of gradual habituation. Certainly sacrifice sometimes performs this function.

Another explanation of sacrifice in its more highly evolved form is that it has grown out of simple offerings made more complex as the concepts with regard to the god are elaborated and overlaid with a more complex ritual and a more extensive garment of theological interpretation.

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Part Five

SOCIAL MORPHOLOGY AND CULTURE

CULTURE cannot flourish without social cohesion. Men live in social groups in which a culture is rooted. The nature of their personal relations, the one to the other, as well as the nature of the groups within the tribe and the relations between these constituent groups, constitute the data of social morphology.

CHAPTER XXVI

ETHICS

THE problem of primitive ethics is not the nature of good and evil, but rather the nature of the things which this people or that have called good or evil and have socially sanctioned or socially disapproved. For the anthropologist ethics is necessarily a phase of comparative ethics, and ethical values are relative.

ETHICAL CONCEPTS

No adequate account of the ethical concepts of primitive peoples has been given, nor even, we believe, of those prevailing in a given tribe. Probably all peoples have words corresponding to our *good* and *bad,* but like our *good* and *bad* they refer to what is desired as well as to what is desirable, things which contribute to immediate demands as well as those which express ethical ideals. Even where there is an ethical flavor, this is of various import, and often word-for-word translation is impossible, owing to the fact that there is no exactly analogous concept in our language.

As an example of ethical concepts the following from the Omahas will serve:

A person who is unselfish.
One who holds himself in control, who avoids words and deeds which might lead to unpleasantness.
One who is straightforward, whose word can be depended on.
One who is willing to help and serve others.
One who never forgets to acknowledge a favor, no matter how trivial; also, a courteous person.
A sympathetic person.
Hospitable.
One who can be persuaded, who will yield; also, a generous or hospitable person.
Diffidence.
A bright child who says clever things.

For each of the above good qualities there is a descriptive word. Opprobrious terms denote the following:

A liar.
A thief.
A quarrelsome person.
An impudent, forward person.
One who seeks opportunities to take liberties with women.
A glutton.
A meddler in other people's affairs.
A tale-bearer.
One who invents speeches and declares that others have made them.
An obstinate person.
A stingy person.
One who sponges on others.
A beggar.
One who begs with the eyes.
One who stares.
An impolite person who forgets to use terms of relationship in correct order, or to thank, or to be courteous.
A lewd woman.

DISCUSSION OF ETHICAL PROBLEMS

There appears to be little discussion of ethical problems among primitive peoples, though this field has been little investigated. The problem story is found in the Plains area of North America and on the coast of West Africa. In both areas the ethical problem presented by the story is discussed with interest. Moreover, many primitive peoples consider the right and wrong of an action.

The Maoris have certain recognized rules of conduct, sanctioned by custom, which they call "straight" or "even": "and such is the deliberation with which they generally act, that in their more savage days they seldom committed even their worst deeds without thinking over and talking over beforehand what it was proposed to do, and convincing themselves that it was in accordance with their rude ideas of justice." Nor are savages lacking in ability to appreciate the relativity of ethical sanctions. The Maoris recognized that a

missionary might be right according to the law and custom of his country, while a Maori might be equally right in holding contrary doctrines which were according to the law and custom of the Maoris. The subject in dispute, said a Maori on one occasion, had been thoroughly discussed among themselves, every knotty point argued according to principles recognized by Maori law and custom, and they had arrived at conclusions which, as he expressed it, were as "straight and even as a board planed by a carpenter."

INITIATION CEREMONIES

The initiation ceremonies through which youths are inducted into tribal life often are effective moral stimulants. Such is notably the case in Central Australia, where the lad receives political and social baptism at the hands of old men who officiate. The initiation ceremonies of Tutu, in the Torres Straits, contain excellent moral precepts for the lads. After being informed as to the lore and customs of the tribe, they are told: "You must not steal. You must not take anything from another without his permission. Should you take his fish-spear or his dugong harpoon and break it, how would you return it to him even if you had intended to do so? When an older man directs you to do something, do it speedily. If he asks you for food, for water, or for anything else, give him half of what you have. Work hard to acquire plenty of fish, dugong, and turtle. Make a garden for yourself; thus you will be amply supplied with food. If you have abundance of fish, give to your mother and father before you give to your brother; if you have a wife, give her a little, and an abundance to your parents, for they have worked hard in your behalf." Then follows a long recital of the social behavior expected of the young man.

Social rebirth is a phase of many of the initiation ceremonies and is an effective way of launching the new personality into the society of the men. The concept of rebirth is realistically applied in many African tribes—for example, among the Bakongos, in order to stimulate effectively the transition to the new career on which the initiate is now embarked.

INDIVIDUAL RESPONSIBILITY

Individual responsibility is not a generally recognized principle in savagery, nor, for that matter, is it universal in civilization. A fine imposed on a member of a village community of Kachari (Assam) sometimes is paid by the body of villagers collectively. When employed in considerable numbers in a tea factory, often the Kachari laborers so employed, resenting some real or fancied wrong done to one of them, will leave the garden in a body, even though there may be a month's pay due every one of them. Group solidarity is strong among most primitive peoples.

Among the Ewes of the west coast of Africa the family is responsible collectively for crimes and misdemeanors to person or property committed by one of its members, each member being assessed for a share of the exacted compensation. Similarly, each member of a family receives a share of the compensation paid to it for injury committed against the person or property of one of its members. Compensation is demanded from the family instead of from the individual wrong-doer, and is paid to the family instead of to the wronged individual. There is, indeed, a wider community responsibility. Any member of a village or town is liable to seizure for the payment of the debt of a member of the village and may be held as a hostage. A similar right exists among the Tshis.

"Wherever a man goes to dwell, his character goes with him," says a Yoruba proverb, by way of recording individual responsibility for one's acts. The Dahomans, like the Fantis, put to death the man in whose house a destructive fire breaks out, presumably without inquiring into culpability. In both areas any mistake or misstep in the festivities of the annual ceremony will lose the unfortunate man his head. "The part of the stick that is in the fire will be burned," is another Dahomey proverb, meaning punishment will fall on the guilty. No one asks whether the stick intended to be in the fire.

Among Yoruba tribes which are patrilineal there is no collective responsibility in a family, except that parents are re-

sponsible for crimes committed by their children. The head of the family cannot pawn the younger members, while, correspondingly, the latter cannot claim the right of support by him. Among both the Ewes and the Yorubas there is family responsibility as well as village responsibility for certain crimes.

Milligan, a missionary among the Mpongwes of the Gaboon district, made use of this community responsibility in disciplining the boys under his charge, and pronounces it "close to moral instruction." It is a convenient device for the missionary, and the African does not resent it. The Fangs recognize a town responsibility for the payment of a dowry, and town responsibility is common among the Mpongwes. MacDonald says of this group responsibility among South African tribes,

"It holds every one accused of crime guilty, unless he can prove himself innocent; it makes the head of the family responsible for the conduct of all its branches; the village collectively for all resident in it, and the clan for each of its villages. There is no such thing in it as a man professing to know nothing of his neighbor's doings. The law requires him to make himself acquainted with everything in his neighborhood as a duty which he owes to the community."

Obviously, group responsibility sometimes works to the disadvantage of the group. A Maori would commit an act of violence on a neighboring tribe to involve his own tribe in a quarrel, thus punishing his own group in order to get revenge on those who had done him injury. But the control which the group had over the individual was considerable. "If a man allowed one of his boy children to get hurt, the tribe would *muru* the father for the loss or probable loss of the child, since the boy probably would have been a future warrior. If a man's wife eloped with a stranger, her relations would *muru* the deserted husband, since he should have taken better care of her and not have cost the tribe a mother of possible fighters. If a man accidentally destroyed common property, such as a forest or a plantation, by fire, or if he caused a canoe to upset and so endanger the lives of his clansmen, or if through care-

lessness he did something which made an eel weir or fishing ground *tapu* and so deprived the tribe of expected food, for all such matters a *taua* would set out and plunder the offender's property. Sometimes to the robbery would be added personal attack, and the recipient of those delicate attentions might be severely beaten as well as stripped of property. . . . A thief would have been quite indignant if not 'plundered,' for it would have been a sign that he was a man of no consequence, unworthy of tribal resentment." As a rule, the punishment of *muru* was given only for unintentional offenses.

In Australia individual responsibility for one's acts is not a thoroughly recognized principle, though for serious offenses, such as murder, the offender is punished. Near Maryborough the accused man, challenged by friends of the deceased, must submit to the ordeal of combat and fight them severally.

In the Geawegal tribe the offender, according to the magnitude of his offense, must receive one or more spears thrown by relations of the deceased; if the injured person has recovered sufficient strength he himself may throw spears at the offender. Among the Kurnais, accused and accuser, accompanied by their respective supporters, kindred and members of their clans, decided the matter by combat. The accused man defended himself against spears thrown at him by friends of the deceased. When he had been wounded, friends intervened in his behalf; even before this, if he were hard pressed, he might run to them for protection. Similar methods were in vogue near Melbourne, the affray being terminated by the first drawing of blood.

In many tribes of the southeast individual responsibility is recognized by the tribe in a more formal and adequate way than the above. In the Narrinyeri tribe offenders were brought before the council of old men for trial. "For instance, if a member of one clan had been in time of peace killed by one of another clan, the clansmen of the former would send to the friends of the murderer and invite them to bring him for trial before the united Tendis." If found guilty of murder he would be handed over to his clansmen to be put to death

by spearing; if of "manslaughter," he would receive a good thrashing, be banished from his clan, or compelled to go to his mother's relations.

In the Dieri tribe, the council, after determining who had killed the deceased, sent out a party to avenge the murdered man, though, curiously enough, the penalty of death did not fall upon the offender, but upon his eldest brother residing at that place. In lieu of an elder brother the father of the accused was killed; further substitutes, it seems, were lacking. Under all circumstances the elder brother must protect the younger brother. A return party might avenge the punishment and kill the slayer of their kinsman, or the slayer's eldest brother, or some other kinsman indicated by said eldest brother. This is group responsibility with a vengeance! If the Wiradjuri council decides that an escaped murderer is to be given up, a message to that effect is sent to the tribe in which the offender has taken refuge; the tribe must then surrender him or fight.

The Kurnai is not the only Australian tribe in which, as regards punishment, distinction is made between the murder of a member of one's tribe and the murder of one who does not belong to the tribe. When the offender is a Kurnai the blood-feud is expiable by submitting to the ordeal of spear-throwing. When the murderer is a member of another tribe the crime is expiated only by the shedding of blood, and, if necessary, the whole clan to which the murdered man belongs fights the clan of the murderer in order to secure reparation. Within the Kurnais the blood feud is not necessarily to the death, but is expiated if the offender undergoes a certain ordeal. In the case of members of an alien tribe the blood feud is fatal, and is satisfied only by the death of the offender. The feud attaches not only to the individual offender, but also to the entire group of which he is a member.

The reward and merit, the blame and punishment, meted out to a man in keeping with the social nature of his acts develops self-consciousness and makes his social activity more rational and teleological, as he becomes identified with each act of his which has social consequences. A thorough-going

responsibility that assigns to the individual all which properly belongs to him is ultimately a blessing, though to the individual in question it sometimes appears in different guise. As Pliny says, Fortune is most kind to many just when she means to punish them.

CLASS AND TRIBAL ETHICS

Every age and every civilization furnishes examples of tribal and class ethics. There is discrimination between members of one's tribe and class and those of another. In civilization national morality is not synonymous with international, and this is equally true of savagery. Yet inter-tribal ethics is seldom entirely lacking.

Thus, although the Kauralags of Torres Straits observe profound secrecy in proceeding to an attack, they usually give the enemy timely warning of coming hostilities—a by no means invariant trait of European civilization. But the ideal behavior toward one's own tribe is never identical with that which is permitted toward other tribes. Among the Maoris no blame attaches to the willful murder of a man of another tribe, but if a man kills a member of his own clan, or even endangers his own life accidentally, he sins against the clan and his property is seized as damages. It is not very different among European nations. Since inter-tribal activity involves the entire tribe, usually tribal restrictions are placed upon individuals who contemplate hostile action. The Omahas have stringent regulations with regard to sending war parties against another tribe. Only after the performance of certain ceremonies connected with specific medicine-bundles, can a man undertake aggressive warfare with the sanction of the tribe. Disaster usually results from disregard of this rule.

In savagery, as in civilization, the treatment accorded ambassadors has as much influence upon inter-tribal relations as has the nature of an inter-tribal offense. On one occasion, after a raid by some adventurous youths when the tribes were at peace, the Omahas sent ambassadors to the Pawnees to request the return of stolen horses. The Pawnees treated the ambassadors with contempt and insult, the result being that

upon their return the Omahas were easily roused to fight. It was similar to the episode of the Ems telegram which precipitated the Franco-Prussian War of 1870. The injury might have been borne, but the insult was not to be countenanced. The leader of the party encountered no opposition when he called upon the tribe to avenge the wrong and the insult which had aggravated the injury.

Conversely, self-restraint or magnanimity exhibited by individuals representing different tribes or factions often will stay an impending conflict. A Maori chief who had gone to retake his wife from her captor had found the latter sleeping; on learning that his wife and children had been well treated he placed his dog-skin mat across the knees of his sleeping enemy and withdrew. When the warrior captor awakened and learned what had happened, his anger was appeased, save as against his men who had watched so carelessly over his safety. Soon afterward peace was made between him and his large-hearted antagonist, a peace which involved the respective groups to which the two men belonged.

Where there are clearly recognized classes or organizations within the tribe, often there is corresponding class or clan ethics. Among the Teton Dakotas the wife-stealing which is one of the recognized tribal sports is not practiced upon the wives of members of the same Dance or War society. One does not meddle with the wife of a fellow-member. In the Feast and Dance societies, as well as in the more important men's societies, a similar fraternalism is practiced. They give assistance to a member who is in trouble, and help the aged and the very poor. If there is a death in the family of a member, a meeting is called at which steps are taken for his consolation. If a member dies, a memorial service does honor to his memory and to his relations. Unbecoming conduct of a member at home or in a distant tribe is punished with dismissal, as is desertion of a fellow-member during a fight. The instructions to the candidate who is about to join the Kit-Fox Society, of the Oglala division of the Teton Dakotas, are replete with moral injunctions, having par-

ticular reference to conduct toward fellow-members of the society. After an invocation embodied in the prayer—

> "Help me in what I undertake.
> Be with me in my undertakings.
> Have pity on me,
> Help me to defeat others"——

the candidate is called before the custodian and remains standing while the lectures are being delivered. The lectures, given by the custodian of the pipe and the councilors, or by a distinguished officer, inculcate bravery, generosity, chivalry, morality, and fraternity toward fellow-members—measured, of course, from the Dakota standpoint. They teach that one should be brave before friends and foes alike and undergo hardships and punishment with fortitude; that one should give to the needy, whoever he may be, excepting an enemy, of everything one possesses; that one should seek out the poor, the weak, the friendless and render them all possible aid. "They taught that a member should not steal except from the enemy; and should set an example by complying with the recognized rules of the hunt and camp. If a fellow-member were in trouble of any kind he should help him to the best of his ability, and if a member died or was killed and left a widow he should keep her from want. They also taught him not to take the wife of a brother member without his consent; that he should treat all his women the same, showing no more favor to one than to another; that if he captured women, he should treat them the same as his own women, and his own children by such a woman should be treated as children by women of his own people; that if he put a woman away he should see that she was not in want until some other man took her; and that if a fellow-member had no wife he should give him one of his women if he had more than two. If the candidate agreed to be governed by these rules, he was then declared a *tokala* (member) and was presented with a lance, smaller than those of the lance-carriers, and was instructed to preserve it as a reminder of his duties and obligations." [1]

[1] Clark Wissler, *The Teton Dakota. AM, XI,* 1912.

HOSPITALITY

In spite of hostile relations prevailing between peoples, often the rights of hospitality are recognized and scrupulously observed. An Eskimo story, from Greenland, depicts the rights of hospitality as observed, even by the most criminal, toward enemies who had come for shelter and were actuated by no hostile intent. Kayakers, coming from a village in which the murderer, Kagsuk, had destroyed most of the people, while out seal-hunting were overtaken by a snowstorm and lost their way. "Bewildered, they came to Kagsuk's house; seeing which they got very frightened, lest he would kill them. As soon as they saw him come out of his house, and before he could utter a word, they said: 'Chance brought us hither, and no intention of visiting you. We lost our way on account of the snow, and could not advance against the storm.' " Kagsuk asked them to come on shore, adding that, as soon as the weather abated, they might set off for home. On hearing this they were reassured and entered the house. The host's son, appearing on the threshold and discovering the strangers, immediately drew his bow and aimed his arrow at them, but, upon being informed that they were involuntarily present, having lost their way, inquired whether they had been offered something to eat. On hearing that they had as yet nothing, he ordered food to be set before them, saying he would share the repast with them. Afterward they went to rest, and slept quietly until Kagsuk roused them, saying that, now the weather was fine, they might start for their home. At their departure he ordered their kayaks to be filled with provisions, but at the same time added, "Take care that none of your people come hither to visit us, lest we should take their lives." They then departed, and arrived safely at their homes.[1]

The Arab of the desert will rob or kill passing strangers, but admittance to his tent and a common meal, the sharing of bread and salt, makes the guest inviolate—at least until he has left. The Koran enjoins hospitality for a period of three days, after which it becomes charity. But whether "charity"

[1] H. Rink, *Tales and Traditions of the Eskimo.*

means merely what is required of the giver of hospitality, or is such a bestowal as the guest has not a right to expect, and makes him virtually a trespasser, is decided variously by the commentators.

THE ETHICS OF TRADERS

A Yoruba proverb declares that "no snuff-seller likes to own that she sells bad tobacco, but all profess to sell tobacco as sweet as honey." The proverb implies that the goods are not always as excellent as they are proclaimed—a shortcoming not unknown to European culture. Savages have not always done the best by their trade articles. It has been alleged that the Point Barrow Eskimos made carelessly the articles destined for sale to the whites, whereas they spent infinite pains on articles intended for home consumption. The Chukchis of Siberia made articles for their own use with the greatest care, but when articles were intended for Europeans did the work with extreme carelessness.

Europeans have meted out to savages a like discrimination. Thus, a few decades ago, on the Northwest Coast of North America, an "Indian yard" was thirty-five inches, and an "Indian pound" was fifteen ounces, as measured and weighed by white traders. A traveller well acquainted with the natives of the South Seas has remarked that, "The strict honesty which the inhabitants of nearly all the Polynesian islands manifest toward each other is in striking contrast with the thieving propensities some of them evince in their intercourse with strangers. It would almost seem that, according to their peculiar code of morals, the pilfering of a hatchet or a wrought nail from a European is looked upon as a praiseworthy action. Or rather, it may be presumed, that, bearing in mind the wholesale forays made upon them by their nautical visitors, they consider the property of the latter as a fair object of reprisal."[1]

SUPERSTITIONS REGULATIVE OF CONDUCT

Each clan of the Poncas had a pipe peculiar to itself, there being in addition a pipe which belonged to the chiefs of the

[1] Herman Melville, *Typee*, pp. 207-8. New York, 1923.

clans and might be filled only by one of them. Its function was to punish a man by acting upon parts of his body one by one. When a man was to be punished, the chiefs gathered together and the pipe was filled by the leader and smoked by all. As the leader took the pipe to clean it each chief put his mind on the offender. As he poured some of the tobacco ashes on the ground he said, "This shall rankle in the calves of the man's legs." Then he twirled the cleaning-stick in the pipe, took out more ashes, put them on the earth, and said: "This shall be for the base of his sinews, and he shall start with pain" (in the back). He specified in turn various portions of the anatomy, until he "finished the man, who died soon after."

A Teton Dakota man who meets a lone woman in the woods avoids her, for she may be a deer-woman; anyone making love to a deer-woman loses the power of speech and will die. In North Queensland, blindness in a man, when not explicable by visible traumatic causes, is explained as a punishment for criminally assaulting a married woman met alone and unprotected in the bush.

THE ORDEAL

In parts of the Old World one of the methods of detecting crime is the ordeal.

When a Kachari girl is suspected of unchastity, she and her sister must eat uncooked rice which has been interred during the night by the side of the sacred *siju* tree of the family. A portion is given to each grown-up girl to masticate. Fear paralyzes the secretory glands of the offender to such an extent that there is a marked diminution in the flow of saliva and the guilty girl is not able to masticate her portion of the rice. In Africa the ordeal was by taking of poison.

The Greeks had not forgotten the use of the ordeal. It is described in Sophocles' *Antigone,* where the guards sent to watch the body of Polynices say, in denying neglect of duty: "We were ready to take up the red-hot iron, to walk through the flames, and to make oath before the gods that we were neither guilty nor privy to it." In medieval Europe the ordeal consisted of throwing the victim into the water to see if he would sink or float, testing with boiling liquids or with hot

irons, by fire, combat, or lot. Through the Germanic ordeals runs the idea of struggle, appeal to chance or to miracle, belief in a miraculous manifestation of the truth, and appeal to miraculous intervention.

THE OATH

Before the Omaha scouts went out to their posts they were summoned to the sacred war tent, where every man was obliged to smoke. The act was equivalent to taking an oath to obey the customs and to do one's duty even at the risk of life. One of the leading men present dilated on the responsibilities resting on the scouts, reminding them of the necessity for truthfulness in their reports:

"Their words would be heard by the unseen powers, which never permitted a falsehood to go unpunished. He recounted the results that would follow any untruthful statement—the man would be struck by lightning, bitten by a snake, injured on the foot by some sharp object, or killed by the enemy." [1]

Similar supernatural sanctions are found among other tribes of the Plains area. Among the Menomini: "You contradict me. I do not lie, but tell the truth only, as the great spirit hears me telling you the truth, and this earth hears me." Or one will say: "This is the solemn truth. At this time all the powered gods hear me tell the truth and this earth hears me tell the truth."

Once among the Ponca, there were rival disputants for war honors. The keeper of the record said: "I shall leave the question of the truth of this story to the Thunder god to decide. We shall know within the year which one of these men has spoken the truth." When summer came the horse on which one of the disputants was riding fell and the rider was killed. He had been killed by supernatural agency because of his falsehood.

THE ETHICAL ELEMENT IN TALES AND TRADITIONS

Perhaps, as Strabo says, "in the childhood of the world, men, like children, had to be taught by tales." However that

[1] Alice Fletcher, and Francis La Flesche, *The Omaha.* 27 *ABE.*

may be, a great deal of the teaching current in the older civilizations of the Mediterranean area with which Strabo was acquainted was by means of tales.

This holds not merely for the Oriental civilizations, but equally for the more recondite and philosophical Greeks, even the Athenian philosophers, as notably Plato, employing the story to send home a moral teaching or illustrate a bit of dialectic. The continued vogue of Æsop's fables shows that this is by no means a lost art in later cultures; and the African animal stories with ethical tinge, many of which have gone into English literature through the writings of Joel Chandler Harris, remind us that Anglo-Saxons of the present century take delight in this form of narrative. That many a tale and tradition of savagery has its ethical lesson, explicit or implicit, is, then, no cause for surprise.

The folklore of the Greenland Eskimos describes many instances in which divine justice manifests itself in the present life. Kasiagsak, a notorious liar who figures in one of the stories, was tolerated for a long time, but finally, as a result of one of his deceptions, when the party had gone a long way from home without seeing the floating whale which he had assured them was close by, they grew tired of Kasiagsak and his deception and then and there put an end to both by taking his life. Although in part a personal retaliation for injury suffered, the act was also the expression of a moral judgment. The Eskimos about Hudson Bay relate the cruel conduct of a father toward his daughter, whom he fastened up in a snow house to starve. Through the attachment of a younger sister who made a small hole through the wall of snow in order to give her food, the girl's life was saved. The sister's kindness was rewarded and the father was punished for his cruelty, being killed by a monster, the *agdlaq,* while out with his sledges. The imprisoned sister had been transformed into an *agdlaq* and had taken vengeance. Another story of the treatment of an old woman by her son, told by the Eskimos of Cumberland Sound, teaches respect and hospitality to an old woman, at least if she is one's mother. The old woman's son and his wife had moved to another locality, where they

lived by themselves. After a long journey the old woman and her granddaughter reached the abode of the former's son. The child went to her mother's porch and said: "Grandmother has come. May she come in during the night, for it is very cold outside?" The girl's father refused admittance to his mother. The grandmother told the girl to tell him that her grandmother wanted to come in for a drink of water. The father said, "No, she shall not come in here." "Tell him that your grandmother is hungry and wants to come in." The girl obeyed. Her father replied, "She shall not come in here." The girl returned and repeated this to her grandmother, who whipped her with a small rope, and both were transformed into bears. Then they went up to the hut and broke into it. The man tried to kill the bears, first with his lance, then with his spear, finally with his knife; but all his weapons broke and the bears killed both him and his wife.

In the tales of the Plains area the ethical element frequently is present. A Fox story contains an incident which reflects the custom of giving recognition for an act done for the public good. Another story tells of a youth who bantered another and met death when the banter returned to him. The moral seems to be that one should not give banter, for the tables may be turned. Another story explains the moral weakness of some women. Other stories inculcate respect for the religious sanctions, pointing out the punishment which ensues upon violation. A Fox story which relates the unfaithfulness of a wife and the discovery and punishment of her and of her lover by the husband, concludes: "Nothing was said to him for burning his wife and the man who had made love to his wife. The boys that made up his party (and who had assisted the husband in killing his wife and her paramour), as many as there were of them, were created warriors." Another story points a moral and a warning against unfaithfulness to a husband. Incidentally, it shows the responsibility of the clan for the conduct of its members. The woman's brother, who is considered her nearest relation, administered the punishment and gave another sister to take the place of the one who had offended. One tale gives warning of what may result from

infidelity in love, especially unfaithfulness to one who possesses supernatural powers. It tells of a youth who forsook one sister for another and was slain by the forsaken one. There is also a story which serves as a warning to those who are unkind to their stepchildren; the selfish stepmother was punished by the visiting apparition of the mother of the girl whom she had shamefully neglected.

An Assiniboine story tells how a husband was informed by a crow of his wife's adultery, and pictures in some detail the way in which he punished her. He took her to a hill, tied a big rock wrapped in a buffalo robe to her ankle, and rolled the rock downhill; she was obliged to run after it until it stopped. In other cases of illegitimate love the husband is described as killing his wife and severing her limbs from her body. The group ethics seems to have confirmed this punishment, for, though she had many relations, no one was disposed to avenge the death.

The Gros Ventre story of Clotted-Blood is largely a description of adventure, though he is also an invulnerable hero who goes about killing monsters which destroy people; also he makes away with individuals who employ these creatures to serve their vile purposes.

A long Navajo myth relates the misfortunes which first came to the Hopis, and next to the Navajos, because of the cruel treatment given two *tioin* boys, one lame, the other blind. In return for this treatment the boys sent various pests, among them worms, which destroyed the corn of the Navajos.

A myth may reflect the current moral judgment, although its chief interest for the hearers may lie in its explanatory character. Yet even so, such a myth, in addition to expressing the supposedly historical origin of a custom, may display the sentiment which keeps the custom alive and justifies its operation.

That one must draw with great caution the ethical teaching implicit in a given tale, lest the inference distort the meaning which it has for the natives among whom it is current, is shown by two tales of the Blackfoot which, whenever they are

told, provoke a discussion among the hearers, some condemning part or all of the hero's acts, others defending him in part or without qualification. Such tales reflect ethical puzzles to which the people can give no assured answer. Both of the tales describe the adventures of scouts. In one, the scout was the leader of a war party, which he kept under cover while, on one pretext and another, he made nightly visits to a woman in the enemy camp. This he did for four nights, and then found that he had grown fond of her. He tried to invent a way to save her. "He might lead her away and kill the others; but they were doubtless her relations and she would mourn for them. Then, if he married her, they would be his relations. Yet he was the leader of a war party and had discovered the enemy." At last he brought the woman and her relations to the camp of the war party, telling them that he had married her. The other story describes the adventures of a scout who visited a lodge of the enemy in which a man, his wife, and their little child were the only occupants. The child, who was just learning to walk, was dipping soup from a kettle, the parents paying no attention to it. Happening to look up, it saw the scout peeping through the tipi, and at once toddled over to the kettle, dipped up some soup in the spoon, and held it to the man's lips. He drank it, and more which the child brought him, then returned to the war party. While retracing his steps he pondered whether he ought not to spare this tipi. Finally he entered it and informed its occupants of their danger. He was rewarded by being told the position of their valued possessions, which he was to secure as soon as the war party entered the tipi. Meanwhile the occupants escaped. So the man procured the valued possessions, yet the people were always suspicious of him, and he was looked upon as the man who betrayed his war party in order to secure booty.

Kidd sums up the moral tone of Kafir tales by saying that girls who break native customs come to grief, impudent bold-faced girls getting the worst of it, but not so the boys. The ethical judgments in Thonga tales are analyzed by Junod as: A just punishment following upon faults, such as curiosity,

jealousy, obstinacy, unkindness of an older sister, the presumption of a younger sister, disobedience, the self-confidence of a man who marries against his parents' will, the laziness of wives, the selfishness of husbands, homicide. Kindness and pity are rewarded. "The animal folklore and the ogre tales seem to be absolutely devoid of such moral lessons. But they are more or less illustrations of the triumph of wisdom over mere brute force. This seems to be the essential idea of all this folklore"; if so, it is an element not devoid of moral value. The story-tellers narrate the doings of animals, choosing for the heroes of their tales the smallest and most defenseless. "Thus the Hare, the cunning trickster, up to all sorts of dodges; the Small Toad, cold and calculating; the Chameleon, with its crafty prudence." A similar idea runs through the group of stories which Junod calls, "The wisdom of the little ones":

"Those who were thought to be dullards, the disinherited, and the hated, end by succeeding better in life than their persecutors, of whom they often become the benefactors. On the other hand, the ogres, as representing brute force and all that is merely material, are defeated, receive punishment for their misdeeds, and are generally cut open (to provide an exit for the victims they have swallowed!). The exaltation of wisdom or goodness is noticeable in almost all the tales, and even foreign tales seem to show, under more or less exotic colorings, that they owe their origin to the same thought." [1] The African story-teller endeavors above all else to interest his hearers by picturesque, laughable, or sensational recitals; but, unconsciously or consciously, he is doing work of positive ethical value.

On the West coast, at least in the region of the Fjort, are tales which give rise to a discussion of ethical principles, much as among the Blackfoot, though the plots, of course, are different.

A Kachari (Assam) story with a moral similar to "Procrastination is the thief of time," or to "Never put off till to-morrow what you can do to-day," tells how a lazy boy

[1] Henri Junod, *The Life of a South African Tribe.*

suffered for his tardiness in planting his paddy. He did not start out to plow until everyone else had planted. The old man who kept tab of the seasons warned him that the season was gone and it would be futile to plow, but still he persisted. Upon reiteration that the season was gone, the boy finally desisted from his plowing, and, after much importuning, went off to search for the season, the warnings of the old man notwithstanding. Little did it avail him. For when he found the season which was gone, Old Man Season merely said: "It is too late for me to return. Go you back and plant your paddy as best you can." And thereby he gained nothing, but lost the best of the season's crop.

The myths and stories current in the Torres Straits show the "dire effects of young people not doing as they are told; the punishment of a fractious girl; the marooning of a young woman by her brothers; a man who behaves foolishly is likened to a small boy; selfishness is punished, as also is poaching; a bad return for good deeds done is not censured, nor is always laziness or greediness; a lazy, fearful, mean, or greedy man is merely tolerated by his companions and is termed childish, but a perfidious man is killed, with the acquiescence of his kinsmen; a greedy man kills himself by overeating; old men inculcate caution to young men eager to fight; a quick temper or 'wild heart' is deprecated. Yet the culture hero was a regular rake and there is not the least hint that his conduct was irregular, but then it must be remembered that this action resulted in an abundance of vegetable food." A Badu story narrates the approval given by fellow-villagers to the killing of a man employed to transport goods from village to village, who on every trip had formed the habit of extracting liberally from the supplies. A story narrates the disaster which came to children from playing at night a game which may not be indulged in during hours of darkness; another story tells of the disaster which befell boys and girls who, in spite of the remonstrances of parents, played the game until a late hour of the night. Nowadays, "whenever the boys and girls are inclined to do bad, the old men remind them that by and by, if they are not good, the stone from Pulu will come

and eat them up," as happened in the story which is told them. Another story concludes: "No sooner had they taken Sesere's dugong meat and burned his house than the women found themselves turned into birds, the men flew away screeching as cockatoos, and Sesere took flight as the black-and-white bird which, flitting from bush to bush, still may be heard chirruping out 'Sesere, Sesere, Sesere'." [1] Such stories convey their own moral.

PROVERBS

The proverb expresses the ethical judgment in summary manner and in concise and abbreviated form which is easily remembered. Proverbs play a small part in the New World, being found in very few areas. The following are known among the Omahas of the Plains area:

Stolen food never satisfies hunger.
A poor man is a hard rider.
All persons dislike a borrower.
No one mourns the thriftless.
The path of the lazy leads to disgrace.
A man must make his own arrows.
A handsome face does not make a good husband.

Natives of the Philippines have the following proverbs:

A hero is braver for his wounds (bravery).
A fish is caught by the mouth (caution).
Whichever side a tree leans, there it falls (character).
He who is hard to suit will choose the worst (choice).
You laugh to-day, I laugh to-morrow (the law of compensation).
He who despises counsel is on the way to misfortune (counsel).
You may dislike, but never despise (disdain).
The fault-finder has the biggest faults (fault-finding).
A wise man's joke is believed by a fool (fools).
Strength yields to plan (foresight).
He who is happy is forgetful (forgetfulness).
Let us fight, then be friends (friendship).
Kindness is a great capital (good deeds).
Kindness is with kindness to be paid, not with money (gratitude).
The pain of a finger is the suffering of the whole body (domestic tranquillity).

[1] Alfred C. Haddon, in *The Cambridge Anthropological Expedition to the Torres Straits.*

Break your head but not your word (honor).
I should not grieve over my misfortune, for what muddy water did not become clear? (hope).
Though my house is small, my heart is large (hospitality).
He who is always preparing to do something never does anything (industry) (procrastination).
The quality of gold is known by rubbing it against stone (merit).
Do not brag before landing the fish (modesty).
If you are afraid of every dog's bark, you will never reach your destination (perseverance).
Do not be too near your superiors, lest they trample on your dignity (pride).
He who deviates from a clear path may lose his way (righteousness).
A whisper is louder than a shout (rumor).
If you want to fool, pretend to be a fool (shrewdness).
A piece of green wood will burn if placed near the fire long enough (temptation).
A liar loves to take an oath (truth).
Wherever I fall, there I stand (honor).

African culture is richly endowed with proverbs. Safety in counsel the Yorubas indicate by this proverb:

Three elders cannot fail to pronounce the word *ekulu;* one may say *ekúlu,* another *ekulú,* but the third will say *ekulu.* The distribution of proverbs suggests that the negro tribes acquired them from the Semitic peoples. They play an important part in Arab culture and among the Hebrews. From the Mediterranean area, probably, they found their way into Europe and also eastward through India into southeastern Asia, with a periphery in Polynesia, though proverbs are not numerous in the islands of the Pacific.

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CHAPTER XXVII

OPINION

"Perhaps there is something that [man] loves more than he loves peace—*the approval of his neighbors and the public.* And perhaps there is something which he dreads more than he dreads pain—*the disapproval of his neighbors and the public.*"—MARK TWAIN.

"A man who will face death without trembling dare not say anything out of the ordinary about mortals. The very same respect for Humanity which prompts him to go forth to his death, makes him bow to public opinion."—OSCAR WILDE.

THE recognition of opinion as an effective force is comparatively recent, but the disposition to regard effective opinion as itself recent in social development is far from correct. Indeed, it plays a more important part in savagery than in civilization, its effectiveness in savage life being, if anything, greater than in civilization. No savage can withstand the jeers of his fellows, though now and then the exceptional civilized man can do so. A Plains Indian quails before the taunts of his fellows. A Crow who showed resentment at an act which was socially sanctioned, such as the abduction of his wife by a fellow member of his organization, if he was a member of the Kit-Fox or of the Lumpwood society, lost prestige, was derided in song, and his blankets and other property might be destroyed by the rival organization. If he took back his wife after she had been kidnapped he was dubbed "holder of a crazy woman," and was looked down on ever after, a continual social punishment. When he had committed a wrong, one of his "joking relatives" might twit him with it in public and publicly disgrace him, an act which he might not resent; he must take his medicine. He would be shamed by having

his old suit torn up and a new one presented to him in public. "To be made the laughingstock of his people is a real and severe punishment to a Crow," who is sensitive to the lash of public derision. "The informal punitive function of public derision, as illustrated by the liberties of the joking relatives and the derisive songs composed on certain occasions (as also the restraining influence of public opinion on the appropriating proclivities of the war captain), must not be underrated," for they insure social rewards for good conduct and mete out punishment, disapproval by one's fellows, for bad conduct.

The Omahas control the unseemly resentment of a man by the sharp instrument of ridicule, an instrument used with equal effectiveness by the Teton Dakotas. An Assiniboine chief is so completely at the mercy of public opinion that he may be deposed for any conduct causing general disgust or dissatisfaction. Among the Omahas public opinion is potent in rewarding generosity, the tribesmen regarding the generous man as the equal of the man who fears no enemy: "All who wish to become great men are advised by their kindred to be kind to the poor and aged, and to invite guests to feasts. When one sees a poor man or woman he makes presents, such as goods or a horse, to the unfortunate being. Thus he can gain the good will of *Wakanda* as well as that of his own people." A similar idea prevails among the Oglala division of the Dakotas and among the Blackfoot.

Among the Blackfoot public opinion could offset the reverses of fortune and make the poor rich and poverty under certain conditions more worthy and endurable than wealth not socially approved. The Blackfoot considered a man wealthy and resourceful if many important medicine bundles had passed through his hands. Formerly the married men gathered together for a formal smoke, at which each in turn announced the bundles he had owned and the amount of property he had sacrificed. Those who had a long list were cheered; those with a short one were ridiculed. A man is considered well informed and wise if he has owned many bundles. Though one fall a victim to utter poverty, if the ex-owner of many

bundles, he may still be spoken of as wealthy and powerful. There is also something approaching the recognition of intellectual attainments in the respect accorded those who learn many rituals and show skill in conducting the ceremonies.

The Cree warrior who refrained from the cannibal feast of which his fellow braves partook was jeered at by his comrades and called unmanly.

In the Muddy Hands military society of the Crow an officer who ran away instead of assisting his fellow tribesmen was derided and dubbed coward. Only bravery in the next battle would redeem his social standing. But an officer who fought bravely was held in esteem, and if he returned was likely to become a chief if his good conduct continued in subsequent engagements.

In the tales of the Plains tribes shame, a form of amenability to opinion, is frequently depicted as a compelling motive. The Dakota aims to insure this amenability. If, after certain importunities accompanied with presents, an Oglala man elected to the dangerous honor of an office in the Crow-Owners Society persists in declining, the members and the crowd of onlookers join in impromptu songs of ridicule and derision. Though to be a member of the Kit-Fox Society is fraught with danger to life because of the duties imposed upon members, nevertheless a man elected to it will not decline the doubtful honor, being unable to withstand the disgrace incurred in the public ridicule which would be heaped on him. Public defamation for departure from the path of rectitude is sufficient restraining influence over the virgin singers in the *Sotka Society*. It is the efficacy of the treatment discountenanced in the Talmud, "He who puts his fellow man to shame in public, commits a sin as grievous as murder."

The Wahpeton Dakotas furnish numerous instances of the efficient force of public opinion. The Hopis use public opinion and personal shame as punishment for certain offenses, such punishment usually being a sufficient deterrent. In the Oraibi *Soyal* Ceremony failure to observe the continence demanded of participants is punished by the clan in the following way: "One of his clan sisters prepares for him a dish of

Sakwawotaka made of blue cornmeal, and seasoned with salt. The man is compelled to proclaim his own shame by carrying the tray in the procession." The tribes of the Northwest Coast, as notably the Kwakiutls and the Chilkats, show remarkable amenability to public opinion, both chiefs and common people; in the case of young, middle-aged, and old, it is one of the most frequently used weapons of social conformity.

The Eskimos are extremely sensitive to ridicule and quickly take offense at real or seeming slights. "With the exception of the part which the *angakok* (shaman), or the relatives of an offended person, took in inflicting punishment upon the delinquent, public opinion formed the judgment seat, the general punishment consisting in the offenders being shamed in the eyes of the people; the only regular courts were the public meetings or parties, which at the same time supplied the national sports and entertainments, and greatly contributed to strengthen and maintain the national life." People who have made themselves obnoxious are disposed of by common consent, the slayer receiving the thanks of the others for ridding the community of a disturbing factor. If a San Blas man steals or trespasses on another's property he is brought before the chief and the assembled people and "made very much ashamed."

Africans show a like amenability to opinion. Opinion requires a Bakongo to keep his yard clean and tidy, he who fails to do so becoming the butt of his neighbors' jeers and jibes. It exercises a restraining influence over the notoriously cruel husband, compelling him to accept the return, without the usual interest, of the marriage fee previously paid by him, and to surrender his wife to her people. Public derision sometimes drives a woman to suicide. A thoughtless mother who has not taught her daughter the various duties expected of her by the time she has a house and farm of her own is condemned by all the village. A girl who neither cooks nor farms properly brings a low price in the marriage market, and going cheap makes her the butt of much ridicule, the object of jeers, taunts, and impromptu village songs. This has a salient effect upon other maids if not upon the victim.

In Angola the Loanda woman derides another with a song, "So-and-so has no children, and never will have any," an insult so keenly felt that not uncommonly the victim rushes away and commits suicide. "African natives are as sensitive to ridicule as are most other people—perhaps even a little more so." The Bangalas are "very sensitive to public opinion." Though; theoretically, Bangala masters had full power of life and death over slaves, public opinion, in its condemnation of those few masters who killed slaves, was a restraining influence over others who might be disposed to follow suit. "The greedy man, the coward, the thief, the scamp who rides roughshod over all the social and communal institutions, the man who is impotent, the man who is accused of witchcraft and will not take the ordeal, and the incestuous, are all put into the songs which are sung at the village dances, and there is no more powerful factor in influencing the native to good or evil than the mention of his name in an impromptu song at the village dance. The paragraph in our newspaper is read by comparatively few people, and only a small percentage of those who read it know the person mentioned, but the song is sung night after night by all the village—the very neighbors of the one thus held up to ridicule or honor." This rhythmic utterance of public opinion, the village song, "incites to deeds of reckless daring in times of war, it brands and shames the cowards, and it restrains considerably the rascals, while it maddens to the verge of suicide the impotent." Among the Atongas public opinion regulates most phases of tribal life even to the giving of a proper marriage dowry to the wife. In Nigerian tribes opinion applies with similar effectiveness to attire as well as to conduct. Among the Thongas a boy who, failing to observe custom, has no paramour is laughed at as a coward and a girl who refuses to accept such advances is accused of being malformed. A minor counter-opinion is represented by the old men, who disapprove of this custom. When the Thongas go out on a big fishing expedition every male member of the tribe is expected to join it. Should a man refuse to do so, "he is blamed and despised, and his companions

will sing to him a mocking song: 'You refuse to fish, *nyauwako,*' (nyauwako is a formula of insult)." When the others come home with fish and he brings none his wife will scold and punish him by giving him mealie pap without sauce, nor, because of public opinion, will he dare to resent it. The natives of Baluchistan have monumental respect for public opinion, as is shown by their cairns of mockery or reproach and by those which commemorate good deeds. These "stones of reproach," found in the Bugti country, tell of a black deed, incest, flight from the field of battle, or a murder performed by a fellow tribesman. "In the Brahui country, if a man is a miser, his neighbors vent their spleen by piling up a cairn against him; if a man brings down a fine head, there will be a cairn where he stood and another where the beast fell; if a man flees from battle, a cairn will commemorate his cowardice." [1] The Kacharis of Assam enforce by public opinion the moral judgments of the community. There is much evidence of its compulsions in Australia. The power of the Maori chief depended in large part upon it, few matters of importance being undertaken without first being submitted to public discussion. Though "there were certain occasions when the part of a person of eminence could make itself felt in a very painful degree," "public opinion had to be recognized." A Samoan "cannot bear to be called stingy or disobliging." Public opinion sanctioned the act of an injured husband who sought revenge in bloodshed. In the Murray Islands of the Torres Straits public reproach for a large family brought a limitation of the number of living offspring. "If the husband or wife had a quarrel with some one, they might be taunted with having a large family, and be told that all the people were talking about them and calling them *au segseg le,* and they would then be greatly ashamed and decide that the next child should die. Formerly four was considered a large family, and any more than that brought ridicule on the parents, to which they were very sensitive. If the parents of the child were an old couple, they feared the ridicule and gossip one birth would cause, and

[1] "Stones." *ERE.*

the child was invariably killed, whether male or female." [1] By a similar power of opinion the men restrained the unseemly action of the eldest son of a family if he had gotten beyond the control of his relations. In the Eastern Islands of the Torres Straits "rules of conduct were sufficiently defined and as far as possible enforced, not by a special judiciary or executive, but by public opinion. Ultimately, recourse might be had to the services of the *maid le,* or to physical force put into operation by the old men through their delegates, or by friends of the injured party; but these were merely the recognized means by which public opinion maintained its authority when the ordinary disapprobation of public opinion was ineffectual. In these respects the Miriams did not differ from the Western Islanders." [2]

Among the Northern Massims of British New Guinea, "if there were any delay on the part of the children in assuming mourning, or any tendency to shirk this duty, their dead father's sisters and sisters' children would expostulate with them and so shame them into it." [3]

Among the Southern Massims, although in theory an injured husband might not kill his unfaithful wife, in many instances he did so; "there is no doubt that in these cases public opinion condoned the slaying, and the husband of the adulterous wife had an admitted right to kill her lover." [4] The Fijians are described as very susceptible to public opinion, preferring death to the "jeers of the ladies," and complaining, if we may believe John Jackson's narrative, that they must not be compared to a white man, "who was generally insensitive to all shame and did not care how much he was laughed at." Among the Manangkabaurs of Sumatra public opinion compels a man to bring food, clothing, or money to his wife, who lives in a separate locality, although this is a departure from the older customs; here, too, public condemnation of adultery is a greater deterrent than the heavy fines imposed on the guilty parties.

[1] Alfred C. Haddon, In *The Cambridge Anthropological Expedition to the Torres Straits.*
[2] *Ibid.*
[3] C. G. Seligmann, *The Melanesians of British New Guinea.*
[4] *Ibid.*

Tissahami, a Vedda, was so upset with the disgrace of publicity that "he killed himself in the compound outside his own hut early one morning." [1]

If a Trobriand Islander neglects to repair his portion of the inclosing fence the garden magician stands up in front of his house in the evening and harangues the village, sometimes mentioning the culprit by name.

According to Plutarch, on the eve of the battle of Salamis public opinion forced Themistocles to consent to the sacrifice of three Persian captives in honor of Dionysus Omestes.

In Sparta maidens sometimes indulged in a little raillery upon those who had misbehaved themselves, and sometimes they sang encomiums on such as deserved them, thus exciting in the young men a useful emulation and love of glory. It was to the efficacy of public opinion that Plato appealed in the *Laws* when he suggested that if any man throw away his arms in flight rather than meet the enemy in death grapple, the man be punished by being afterward treated as a woman and never again permitted to enter the forces of a commander.

Huxley's dictum that "the greatest restrainer of the antisocial tendencies of men is fear, not of the law, but of the opinion of their fellows," seems applicable to all civilizations.

In the cruder cultures the people spend their lives in a condition of publicity which requires an effort upon the part of the civilized man to realize. Among the Southern Massims, in spite of the comparatively loose structure of the hamlet group, "every man, woman, and child is being constantly judged, in regard to matters which appear to be of the smallest importance, by a relatively large number of their fellows, whose verdict constitutes the public opinion of the community." [2]

This statement applies to every primitive group. In the small tribe each is in intimate contact with his fellows at almost every phase of their lives and they with him. The condition is one of unrestrained publicity which usually is pitiless publicity, a symbiosis, or living together, which fosters a like-

[1] C. G. Seligmann, *The Veddas.*
[2] C. G. Seligmann, *The Melanesians of British New Guinea.*

ness of thought and affords to public opinion every facility of control. All think aloud and each hears the thought of his neighbors, which he easily identifies with his own.

Civilized man has won a larger measure of privacy and partially escapes the pitiless publicity which makes thought uniform because it is public. In civilization some individuals are shielded from the forces of public opinion which sway those who live more amply with the public.

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CHAPTER XXVIII

KIN AND KINSHIP TERMS

MARRIAGE CLASSES

MANY tribes are composed of groups, commonly called marriage classes, into one or more of which an individual may marry, into others of which he may not marry. When he must marry outside his group the system is known as exogamy; when he must marry inside his group it is called endogamy. As a matter of fact, all endogamy implies exogamy, and all exogamy implies endogamy. Thus, in exogamy a man may not marry in his marriage class, but is expected to marry in some other group of his tribe, the prohibition being endogamous with regard to his tribe, though not with regard to his marriage class. Again, in endogamy there are restrictions of kinship within his marriage group, so that the system of endogamy is exogamy with respect to the prohibited degrees of relationship. Endogamy and exogamy, then, are relative rather than absolute, the one to some extent implying the other. As an example of a system of marriage classes the southern Arunta, of Central Australia will serve. For marriage regulations the people are divided into the following classes:

I	II
Panunga	Purula
Bulthara	Kumara

A man of Panunga may marry only in Purula, the children belonging to Bulthara; a man in Bulthara may marry only in Kumara, the children belonging to Panunga; a man in Purula marries in Panunga, the children belonging to Kumara.

In addition, each of the above four divisions is further subdivided into two groups, each sub-group functioning as a

marriage class, such inter-marriageable groups being known as *unawa*. Since each of the four groups is subdivided into two there are in reality eight exogamous groups. In the northern division of the tribe the eight exogamous groups, respectively, have names, there being the following arrangement of classes and descent:

MARRIAGE CLASSES AND DESCENT AMONG THE NORTHERN ARUNTA

CLASS OF CHILDREN WHEN A MAN OF B MARRIES A WOMAN OF A			CLASS OF CHILDREN WHEN A MAN OF A MARRIES A WOMAN OF B
	A	B	
Kumara	Panunga	Purula	Appungerta
Umbitchana	Uknaria	Ungalla	Bulthara
Purula	Bulthara	Kumara	Uknaria
Ungalla	Appungerta	Umbitchana	Panunga

KINSHIP TERMS

We are so accustomed to the kinship terms in use in our own culture that we are seldom aware of their basis. Those which we use are based on blood or on marriage. Thus we have, based on blood relationship: father, mother, sister, brother, cousin, nephew, niece, uncle, aunt, grandparent, grandchild; based on marriage: the -in-law and the step-relationships. Only in the case of *husband, wife, mother,* or *father* is a relationship term applicable to but one individual. Any other kinship term may refer to several individuals, but always the kin group is composed of individuals related by marriage or by blood. By extension of these terms we may call one "uncle" or "aunt," "brother" or "sister," who is of no relationship, as is not infrequently done in fraternal orders. Other distinctions than these we seldom make. We do not, for example, indicate whether an uncle or a grandparent is related to the speaker on the father's side or on the mother's.

Neither, except in the line of direct ascent or of descent, does the term of relationship connote the age of the person addressed relative to the speaker. An uncle may be younger

than the nephew, and a brother may be younger or may be older than the speaker.

In many tribes there are distinctions not observed by us, so that in kinship terminology the savage is more discriminating than are we. He pays attention to age and to maternal and paternal relationship. His term of address may indicate whether the uncle is brother of his father or of his mother, whether the nephew is son of father's brother, father's sister, mother's brother, mother's sister. He may indicate in the term the age of the person addressed relative to himself, the term which he uses toward a brother indicating whether the brother is older or is younger than the speaker. In many cases, the blood relationship is a matter of small moment.

AUSTRALIA

The Australian makes use of kinship terms which indicate relationships cutting across our kinship categories. Thus the Arunta term *oknia* refers to father, and the brothers, class and blood, of the father, "class" meaning a group of men of the age generation of the father, though not necessarily of blood relationship. Similarly, *gammona* refers to the brothers, blood and class, of the mother, while *mia* signifies mother's sisters, class and blood, and *uwinna* the class and blood sisters of the father. When a male uses the term *allira* he refers to his children and to the children of his brothers, class and blood, while when a female uses this term she refers to her children and to the children of her class and blood brothers. The term *umba* used by a man refers to the sons and daughters of his blood and class sisters.

In some tribes a man and his wife refer to their child by different kinship terms. This is because man and wife belong to different marriage classes. In Australia blood relationship is not the basis of the kinship distinction, as it is with us, but marriage classes are the basis of relationship. Age status is important and often is connoted in the kinship terms. In short, Arunta terms of kinship show a close correspondence with the marriage classes, the kinship almost invariably being

determined from this point of view. To a large extent the connotation is marriage class relationship rather than family or blood relationship. Thus *oknia* refers to class "brothers" as well as to blood brothers of the father; *gammona* refers to class "brothers" as well as to blood brothers of the mother. As the brothers of the father and the brothers of the mother belong to different marriage classes, a distinction is made between them. So with other terms of kinship. The correlation of kinship with marriage class is common in Australia, the Urabunna system being practically identical with that of the Arunta. The Urabunnas do not have component classes in the respective marriage divisions, as do the Aruntas, yet there is a more delimiting exogamy requiring a man to take a wife from the *Nupa* group of the complementary division. She must belong to what we may call the senior side of the tribe; a man is *Nupa* only to the female children of the elder brother of his mother, or to those of the elder sister of his father. Here the kinship connotation of younger and older is of pragmatic value, not only reflecting the rights which elder brothers have over younger brothers, but also serving as a guide to matrimonial possibilities.

The Luritchas have a modification of the Arunta kinship scheme. Husband, husband's brothers, wife, and wife's sisters are *kuri;* wife's mother, wife's mother's sisters, daughter's husband and his brothers, are *umarri*—two terms not represented in the system of the neighboring Kaitish and Warramunga tribes. Here the reference is to classes which stand in the same relation to the speaker, whether male or female; as when a wife uses toward her husband and his brothers the same term which he uses toward his wife and her sisters.

In the Kaitish tribe a husband, his brothers and his (apparently also the wife's) sister's husband are referred to as *umbirmia,* all of them being in the same class (unless husband's sister's husband is included). The same term describes the relation of a husband to his wife and to her brothers. In each case the class relationship to the speaker is the same.

The above account of the Kaitish is based on Spencer and Gillen's *Native Tribes of Central Australia.* In their later

work, the *Northern Tribes of Central Australia,* they give a list of kinship terms which show class and generation connotation, irrespective of ascent or descent in line of relationship. The term *tapa-tapu* includes:

Father's mother and her sisters.
Mother's father and his brothers.
Wife's father's father.
Husband's father's father.
Daughter's children.
Son's wife's father.

With the exception of the last, all the persons addressed as *tapa-tapu* are two generations removed from the speaker and are in the moiety complementary to that of the speaker.

In the Dieri tribe, as in other tribes of southeast Australia described by Howitt, the same principle runs through kinship terminology. Here, as among their neighbors the Urabunnas, the tribe is divided into two exogamous units without component classes, descent being matrilineal. Only a male addresses a daughter's child by the term *nadada,* which he applies also to his mother's father, both belonging to the complementary marriage division; and only a male applies the term *yenku* to a son's son as well as to father's father and the latter's brothers, individuals in the same moiety as himself but standing in different relationship to male and female, since they trace relationship through different marriage classes. Similarly, a woman applies the term *kanini* to her mother's mother and to her daughter's child, both of whom belong to her moiety and are removed from her by the same number of generations. A husband calls his wife's brother *kadi,* whereas the wife calls her husband's brother *yimari,* the latter being the term which a male uses when speaking to wife's sister, the moiety and age relationship of a man to his wife's sister being the same as that of a woman toward her husband's brother. A woman uses toward her daughter's husband the same term, *paiara,* which a male uses toward his wife's mother, the moiety relationship being the same, as likewise the degree of removal in age grade. By the term *kalari* a woman refers either to her

son's wife or to her husband's mother, with a like common class connotation.

In the Kabbi and Wakka of Queensland there is matrilineal descent and there are two classes in each exogamous moiety. In the Kabbi a man calls his brother's child and his sister's child by the same name, *kani,* if a son, *kaningau,* if a daughter, although they belong to different classes and different moieties. A female uses these terms to her sister's child and brother's child, while husband and wife use the same term in reference to their children.

TORRES STRAITS

In Murray Island, Torres Straits, the classificatory system prevails, but with modifications not found in Australia. The word *le,* for example, connotes one of the same sex having the same parents as the speaker. Thus a brother addresses a brother as *le,* a sister calls a sister *le. Herbet,* used by a male means a sister, used by a female means a brother. They make no distinction between father's sister and mother's sister, though Rivers believes they formerly did so, one term subsequently coming to stand for either paternal or maternal aunt (or uncle)—as occurred in Greek and in Latin.

In Mabuiag Island, where a similar system of kinship prevails, distinction is made between paternal and maternal uncle. A man may not marry a woman of the same totem as his own, nor his *habat*—this is, his sister or the sister of his father—nor his *apu,* mother, nor his *katapu,* father's sister or brother's daughter. The marriage restrictions, therefore, apply to paternal relations. Marriage is regulated by kinship rather than by clan. A man is restricted not only from marrying a woman of his own clan, but also those of several other clans if the women are related to him by certain ties of kinship. "Marriages between people nearly related to one another never occurred, while marriages between people related to one another even remotely were rare. No single case occurs in Mabuiag or Badu in which marriage has taken place between own brothers and sisters, and no definite case between *habat* of the same clan. Only one case is recorded of mar-

riage between first cousins, and this is one in which it is almost certain that the genealogical record is incorrect. On the other hand, sixteen cases at least are recorded in which marriage has taken place between people related to one another by some degree of cousinship more remote than that of first cousin. In nearly all these marriages the relationship is either very remote (third cousins or second cousins once removed) or there are extenuating circumstances." [1]

POLYNESIA

Maori terms of kinship show a tendency to indicate relationship according to age grade, this being more important than tracing descent through maternal or paternal line. Thus, the term *tungane* used by a woman means brothers and sisters of her parents. The speaker applies the term *taina* to her cousins, if they are children of her parent's younger brother or sister, and *tuakana* if they are children of her parent's elder brother or sister. *Tatao* denotes all the speaker's brothers and sisters younger than himself or herself. *Tama* means eldest son, or the eldest son of brother or sister, or eldest son of a child of one's parent's younger brother or younger sister. Similarly, *taina tane,* used by a female, indicates younger brother's wife, or wife's younger sister. *Taina* means younger brother of a male or younger sister of a female. It is applied also to the children of the brothers and sisters of a parent. *Tuakana wahina* includes the elder brother's wife and the wife's elder sister. In the cases cited, as in many other terms of kinship employed by the Maoris, there is connotation of age grade rather than of clan, class, or maternal or paternal relationship.

TODAS

The word *matchuni* distinguishes the children of brother and sister from those of brother and brother and from those of sister and sister, the *matchuni,* or cross-cousin relationship, being one in which marriage is permitted, while for other cous-

[1] Wm. H. R. Rivers, in *Cambridge Anthropological Expedition to the Torres Straits.*

ins it is not permitted. A distinction is made between elder and younger *mun*—that is, own brothers by the same mother —or cousins related through the mother's brother, the cousin who is the child of the mother's elder brother being called *en mun,* the cousin who is the child of the mother's younger brother being called *en mud karnd.* An older sister of the wife is addressed by a different term from that employed when addressing a younger sister of the wife. Frequently relations are addressed in a manner which connotes their age relative to the speaker.

YORUBAS

Among the Yorubas *baba* is used not only to the actual father, but also to uncles on both sides of the house, and to men to whom it is desired to show respect, provided they are of an age which would admit of their being father to the speaker. *Iya,* "mother," similarly is used as a term of respect toward women of the generation next above the speaker. *Ara* is a term used to relations of the same age as the speaker, and is applied to brothers, sisters, and male and female cousins. Usually the relative age of the person addressed is expressed by the word *egbou* ("elder," "senior"), or by *aburo* ("younger").

MENOMINIS

Menomini relationship terms show a grouping which follows in many ways the lines of exogamous classes. Thus elder brother, father's brother's son, mother's sister's son, are referred to by one name, *nenut,* all belonging to the same clan or exogamous division. In several of the terms, however, this exogamous connotation is not present. An example is *minasomasesa,* which includes mother's mother's sister's son, mother's father's brother's son, father's mother's sister's son, father's father's brother's son.

INDO-GERMANIC KINSHIP TERMS

In early Greek kinship terminology the maternal-paternal distinction is observed. Mother's mother and father's mother

are denoted by separate descriptive terms, as are mother's sister, father's sister, mother's brother, father's brother—distinctions which persist in Swedish and Norwegian to the present day.

The Romans possessed distinctive terms for ancestors to the sixth degree, one set for males, another for females, having terms also for descendants to the sixth degree. Remoter ancestors were grouped under the term *maiores,* remoter descendants under the term *posteriores.* The maternal-paternal distinction applies as in Greek to sisters and brothers of father and of mother, and to cousins. Thus a nephew is either *fratris filius* or *sororis filius,* the son of one's brother or the son of one's sister. Cousins are *fratres patrueles* if their fathers are brothers, *fratres consobrini* (or *consororini*) if their mothers are sisters, *fratres amitini* if the father of one is the brother of the other's mother—that is, if the parents through whom the relationship is traced are brother and sister. The children of cousins german—that is, of those whose fathers are brothers or whose mothers are sisters—call one another *sobrinius* or *sobrina,* according to the sex of the person addressed.

Germanic peoples once observed the distinctions with regard to paternal and maternal relations, as was done in early Greek and Latin. In German the words denoting them have for the most part survived, though the distinctions which they once connoted are now lost. At the present time *Muhme, Tante,* or *Base* mean, indifferently, "aunt," though at one time *Muhme* meant "maternal aunt," and *Base* "paternal aunt." Similarly, *Oheim* was "mother's brother," *Onkel,* "father's brother," both now meaning "uncle," maternal or paternal.

In early English are many similarities to the early German system. Before 1600 "niece" commonly meant granddaughter as well as daughter of one's brother or sister, or was used of any female relation. In the sixteenth century "nepote" referred to a grandson as well as to a nephew; indeed as late

as the seventeenth century the word "nephew" commonly referred to a grandson as well as to a nephew.

THE RATIONALE OF KINSHIP TERMS

Kinship terms among primitive peoples frequently are related to the system of marriage class status, and age grade. These social distinctions are reflected in kinship terminology, or perhaps we should say that kinship distinctions are reflected in the social order. Distinctions in one realm pave the way to corresponding ones in the other; we do not know which is prior. Only in European culture does history come to our aid. Here social classes and property rights were closely correlated with kinship distinctions, and simplification or change in the former led to change in the method of tracing descent. In ancient Greece the importance of the maternal-paternal distinction is reflected in the property and inheritance rights of agnates and cognates—that is, of those related in the paternal line and those related in the maternal line. As in Rome, adoption conferred all the rights of blood relationship, but males inherited to the exclusion of females as far as descent could be counted. Demosthenes says that if there be no brother by the same father, nor father, nor grandfather on the father's side, the property goes to the nearest male relation, presumably reckoned on the paternal side, though this is not specified. In the absence of nearer relations the inheritor of the property becomes the guardian of the widow and must either marry her or give her in marriage to another.

POSSIBLE ORIGINS OF THE DISTINCTION BETWEEN MATERNAL AND PATERNAL RELATIONS

There are two ways in which the distinction between maternal and paternal relations may have arisen. The first presupposes either a matrilineal or a patrilineal stage in which descent was counted exclusively through one parent, mother or father, as the case might be. Subsequently, when descent was counted through both parents, the earlier method was supplemented rather than supplanted by the latter and lin-

gered on by virtue of the inertia of language. Finally, as happened in Greek, Latin, and German, the importance of the maternal-paternal distinction dies out, and with the loss of its rationale the discrimination originally embodied in the terminology falls into abeyance. A survey of the systems of relationship used by various peoples still in the matrilineal stage shows that a distinction between maternal and paternal relations frequently is made prior to transition to a patrilineal scheme. Hence the twofold system cannot be accepted as marking a transition, though it cannot be denied that the supplementary patrilineal or matrilineal kinship system paves the way to a twofold system of patrilineal and matrilineal descent and facilitates even though it does not insure it. Another rationale for the distinction exists when the people are divided into exogamous portions, so that father and father's relations belong to one portion, mother and mother's relations to another, as occurs in many primitive tribes. Such conditions are furnished by the systems of Greece, Rome, the early Germans, and the Chinese—peoples who observed the maternal-paternal kinship distinctions.

The oath or in-law relationship of the early Germans is an example of the attitude toward an outsider until he becomes a sworn kinsman, making him a kin-d man. Whether such fundamental units of the social organization gave rise to kinship distinctions, or whether, on the other hand, the kinship distinctions were primary and fundamental and gave rise to organizations which originally were only the kin, we cannot, in the absence of evidence, even surmise.

There is, however, a correlation, a more or less parallel development of the two. Either condition could give rise to the other and either may be regarded as a logical and psychological development of the other.

The fact that near relations, whether counted by paternal or by maternal descent, cannot marry, establishes exogamy and of necessity exogamous groups, so that a restriction of marriage based on blood relationship through one parent lends countenance to a distinction between maternal and paternal relations. Property rights emphasize the distinction and

help to perpetuate it. Perhaps Karl von Amira is correct in his surmise that the distinction in early Germanic social life between cognates and agnates had its origin in the blood-bond (*Blutsverband*), which held together those related on the father's side, but did not include relations of the mother, who belonged to another blood-bond. It is true that paternal relations are found in the group to which the mother belongs and maternal relations in the group of the father, but these are disregarded—as nations at war are disposed to forget the existence of fellow-nationals in the enemy country.

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CHAPTER XXIX

SOCIAL ORGANIZATION

In savagery as in civilization there are spheres of influence. Social influences penetrate a certain group of people, while adjacent groups may be impervious to these same forces, though shot through with similar motives, intentions, and preferences. The family is an example of such a sphere of influence.

The group pervaded by given forces is subject to their impulsions, hence social organization is closely linked up with social control. In the one case the emphasis is upon form, in the other, upon function. No sphere of social influence functions in isolation, but the various spheres within a given tribe are interlinked and interpenetrating. The man who is member of a family group may be also member of a clan, a local division, a tribe, a confederacy. Even the family group may function in other spheres than that of the family, as notably in the clan or tribal life, where it sometimes functions as an entity rather than as merely an aggregate of individuals.

FORMS OF SOCIAL ORGANIZATION

The Family.—The family is one of the most widely flung forms of social organization. It is a feature of civilization at the earliest periods of which we have record. Some kind of family grouping is found in all savagery. Sometimes the family is absorbed into a group of families, but in every tribe there is a group held together by ties of marriage or blood which functions as a unit.

Sometimes marriage is attenuated, holding very loosely. Marital privileges apply in some cases, as in parts of Australia, to a group of men and a group of women, though seldom is there entire absence of individual marriage.

Marital duties vary greatly. In some cases the husband is bound by strict rules of obligation to protect the wife and furnish food for her, and sometimes he is under little obligation. The same applies to the duties which the wife owes the husband, varying from complete obedience to almost complete independence. In the ties between parents and children there is similar fluctuation. Inevitably the mother is bound to her child, at least during its infancy, for this is a precondition to group survival. In most cases the father is under obligation to provide food and shelter, though in some tribes he seems little concerned about the succor and comfort of offspring. In domestic affairs savagery, like civilization, runs the gamut, and almost all possible combinations of duty and license are found. Bonds between children having the same parents usually are closer than those between children who have different parents.

As a rule, sisters are linked to sisters more intimately than to brothers, and brothers are more likely to recognize duties to brothers than duties to sisters. In many cases the brother, especially an older brother, has a measure of control over sisters, who become subject to him at the death of the father. In many areas, too, after the death of the father the mother is largely under the control of the eldest son, and in some tribes he is able to dispose of her in marriage. This was the case in Greece and in Rome.

Authority within the family often is on the basis of age. Commonly an older sister has authority over a younger sister and an older brother over a younger brother.

The Kin Group.—Those related by blood sometimes are held together by bonds which make of the relations virtually a large family group, sharing common privileges and acknowledging common duties. This was the case among the early Germanic peoples, and is a common feature of Australian tribes. Kinship sometimes is counted on only one side of the house—that is, the kin is a group of people related through a common ancestor.

The *phratres* of the Greeks and the *tribes* of the Romans illustrate this principle, the eponymous ancestor, perhaps,

being mythical. Such is the case among the Tlinkit of the Northwest Coast of North America.

Among Chinese, Greeks, Romans, Teutons, the kinship group was related through males, actual or mythical; among the Tlinkit the relationship was traced through females to a mythical founder of the totem group to which the kin belonged. The recognition of one blood tie implies, of course, the failure to recognize other blood ties as socially binding.

The Local Group.—Locality may be the tie which holds the group together. Such local groupings are found among the widely scattered Eskimo peoples. It is a common feature of the grouping in the Plains area of North America, where the bands are of larger composition than in the sparsely populated Eskimo belt. Local grouping, with strong emphasis on family bonds, is found among the Veddas and in the Andaman Islands. Many African tribes exemplify it in combination with other social bonds, such as the *kraal* in South Africa. Perhaps most of the hunting and fishing peoples show a tendency to resort to local grouping, frequently combining it with other social adhesions.

Clan and Gens.—A group which functions as a unit in tribal life and which recognizes matrilineal descent is a clan; a group functioning as a unit and practicing patrilineal descent is a gens. Greek and Roman life furnish examples of the latter. Clans or gens are well developed in many parts of North America, notably on the Northwest Coast. Another area of high development is the Southwest of the United States, with similar groupings in parts of the Plains area. Clans or gens usually function in connection with exogamy, as is well illustrated by Northwest Coast culture.

Moiety.—Sometimes a tribe is divided into two large sections, called moieties. The division dichotomizes the tribe, though the parts, not being equal, cannot correctly be called "halves." Such dichotomous divisions are found in parts of Australia, among the Todas, and through most of the Northwest Coast area of North America. The distribution of moieties is highly correlated with the distribution of gens and clans.

Whether the moiety was primary and broke up into clans or gens, or whether a combination of gens or clans gave rise to moieties, we cannot say. Perhaps in different areas the two processes were separately at work. In all probability the one gave rise to the other, though the areas in which the one or the other of these respective processes went on we are not able to identify, since in ethnology there is little to guide us in making historical reconstruction. In the absence of history, logic is not sufficient.

The Tribe.—A group integrated by a commonly recognized authority and acknowledging no external authority is a tribe.

A tribal arrangement is nearly ubiquitous in savagery, but not quite so. The Eskimos, for example, are not a tribe or a collection of tribes, but rather groups of peoples sharing a common language and a common culture, but without tribal authority.

The tribe functions as a political unit. Though this is evident in time of peace, the integrity of the tribe is most manifest in time of war. It then appears as the group which may consider any other group its enemy; and some other group is always a potential enemy. The activities of the tribe are not subject to authority emanating from without; independence is the crucial test of tribal reality.

The Confederacy.—Tribes banded together constitute a confederacy. Confederacies are not common in savagery, constituting, it would seem, a more complicated political arrangement than is feasible at this stage of culture. Practically always it exists for purposes of war, usually for aggressive war. Confederacies existed among the Maoris, who were martially and politically a highly developed people. They were known to the Northern Iroquois, who developed and for a long time maintained the confederacy known as the Five Nations (later the Six Nations). The almost continually warring Plains tribes seem not to have been given to confederacies, operating usually as politically isolated tribes or bands, though perhaps a loose confederacy existed among the Dakotas.

SOCIAL AUTHORITY

Custom.—A regulator of life in any community is custom. While this may be but an abstract way of expressing the tendency of individuals in a community to conform to accepted standards, there can be no doubt that this tendency is a conservative element. Being conservative, it has the force of virtual authority. To say that custom regulates is but a way of saying that society regulates itself along those lines which we call custom. Yet the regulation which grows out of behavior has a tendency to force behavior into accepted channels, so that custom has a compulsory aspect. No group in savagery, as no group in civilization, is without custom, and in no group can individuals defy it for long.

Tradition.—Closely related to custom is tradition. Tradition is the rationalized portion of social behavior, as custom is its objective behavioristic side. People not merely do things in a fixed fashion, they find reasons for doing them. The reasons which they discover are their traditions. The traditions take on a historical background, being thrust back into the beginnings of the group life or into some other portion of its past. Many of these we call myths, but for the savage they represent what happened and not merely what he wishes may have happened. The wish which brought them into existence gives place to the faith that they really did exist; the wish drops out of consciousness as faith in their historicity dominates. "This is what our fathers told us," is the justification for many of the tenets of savagery—and, for that matter, of civilization. We differ from savages in degree rather than in kind.

Public Opinion.—Potent in every primitive community is public opinion. Savages are not unappreciative of the opinions of their fellows. Indeed, one may say that public opinion reigns supreme in savagery. The savage can face the spears of the enemy, but not the taunts of fellow-tribesmen. He has physical courage, but little moral courage to stem the tide of public opinion.

In some communities, such as those of the Eskimos, public

opinion, custom, and tradition constitute about the only elements of authority. Not least powerful among these is public opinion. The opinion of the community sometimes brings about the death of a man, shames men into doing courageous acts of which they otherwise are not capable, brings the guilty to justice, and confers rewards upon the deserving.

On the Northwest Coast of North America public opinion enforces clan regulations; in the Plains area it regulates conduct in the ceremonial organizations; in African tribes it is a scourge with which to lash the recalcitrant, a balm to those who suffer injustice. A detailed account of its working would include the whole of savagery.

The important part which it plays in savagery is due to the unrestrained publicity which characterizes the lowly cultures. The savage lives a life in common with his fellows, having about him few of the barriers which conduce to privacy. When he thinks, he thinks aloud, his words are words to everybody. As no man lives to himself alone, so none is free from the opinions of his fellows.

The Elders.—Kinship terms frequently connote age, which in social life plays an important part. The words of the elders are listened to with respect. In some cases, as among many Australian tribes, a group of elder men regulate tribal affairs. In the Plains area of North America was a *tiotipi,* an old men's tipi, to which the people went for counsel in peace or in war. Most of the older civilizations inculcated a respect for the aged which invested them with authority.

Executive Council.—Often the group of elders is organized into an executive council largely responsible for the conduct of tribal affairs. In many cases there is an executive assembly not composed wholly of the elders, perhaps not primarily of elders. Among the Northern Iroquois, for example, assemblies of women supervised certain tribal affairs.

On the Northwest Coast of North America assemblies within the exogamous moiety division deliberated about intramoiety affairs and settled many a dispute. The palavers of African tribes were virtually such councils. They consti-

tuted an important part of Maori life, determining war or peace and deciding the succession to the chieftainship.

Headman and Chief.—At the head of many a clan or gens is an individual of recognized authority upon whom primarily lies the duty of determining policy and of seeing that the desires of the group are carried out.

Direction of tribal affairs by a man of authority constitutes chieftainship. Chieftainship is seldom unqualifiedly inheritable, the right to the succession depending upon qualifications for office. In certain societies, however, as in the highly evolved social structures of the Northwest Coast of North America, inheritance of chieftainship is a well-established right, the succession being handed on through the sister's son, the line of descent being matrilineal. In less evolved social structures merit plays a large part in determining the succession.

King.—There is no distinction, other than an arbitrary one, between a chief and a king. When the office is elaborately developed and the executive is recognized as above and apart from the rest of his tribesmen, we speak of the incumbent as king. So defined, the institution flourishes in West Africa. It is not a feature of the less evolved African cultures and was absent from the New World, save, perhaps, in the highly developed cultures of Central and South America.

SOCIAL CLASSES: CASTES AND HIERARCHIES

Where social life is elaborate in its distinctions and in its forms of organization, there are frequently castes or hierarchies.

Such social classes are a feature of Polynesian culture. They are found in the highly developed civilizations of West Africa, and in the cultures of Central America and the Andean region. Something approaching the caste system is found in the Northwest Coast region, where the totem groups constitute a hierarchy.

The distribution of castes and social hierarchies is correlated with the development of chieftainship and kingship. No social classes exist where there are no prerogatives of chief or of

royalty. Also they are correlated with economic and industrial development. Endogamy is a feature of caste and of social hierarchy.

SECRET SOCIETIES AND CEREMONIAL ORGANIZATIONS

Secret societies are not limited to colleges and the communities of western European civilization. They existed in the early Mediterranean cultures, particularly in ancient Greece, where they took the form of religious cults. In many areas of savagery, too, there are secret religious cults, as notably in the Southwest of the United States and in West Africa. They are found also in Melanesia, Australia, and parts of Polynesia. These secret religious orders are in all of the areas mentioned restricted to men and their nature must under no circumstances be revealed to women. Frequently, too, their membership is confined to a few members of the male sex. In parts of West Africa and in Melanesia they perform a function something like that of the Ku Klux Klan, operating in the dark and under cover of disguises.

Much more numerous are the ceremonial organizations. These flourish most abundantly in the Plains area of the United States, particularly among the various bands of the Dakotas, where they are sometimes described as dance organizations, a dance being a phase of their activities. A widely distributed one in this area is the War Dance society, composed of those who have taken scalps or have counted *coup* on the enemy. Scalp locks attached to hoops were commonly used in the celebrations of this organization. Some organizations are composed of warriors who are under a vow not to turn their back upon the enemy and not to desert a fellow member during a fight with the enemy. Another, found also in the adjacent Algonkian Woodland area, is composed of medicine-men and medicine-women, the wakana watchipi. Still another is known as the Raw Dog Liver Eaters, from the practice of eating the raw liver of the dog during the celebration of their rites. The Clowns, who are powerful medicine-men as well as clowns, also have their organization, a feature of the celebrations being the extraction with bare hands and arms of the

tongue of the buffalo from the kettle of boiling water in which the meat is being cooked. Clown organizations are found also in the Southwest.

TOTEMISM

A group which functions as a unit and which has as its distinguishing characteristic an animal or thing which serves as its symbol is known as a totem group, and the animal or object serving as the emblem is called its totem. *Totem* comes from Central Algonkian, where it connotes an animal guardian, secured by a youth in a dream or trance, which assists him in the hunt or on the warpath.

Totemism is of wide distribution, as a glance at the map in Frazer's four-volume work on *Totemism and Exogamy,* will show. It rages in Australia, and is found in Polynesia, in parts of India, in regions in Africa, and in elaborate form on the Northwest Coast of North America. Its distribution is interestingly discontinuous.

Frequently it is associated with clans or gens. Only an animal or other symbol is needed to make a clan or gens into a totem group—though by what manner totemism came about we do not know.

Generally it is associated with exogamy. Such is the case on the Northwest Coast, for example, where a man of one totem group must marry out of that group. In most Australian totemic tribes, however, there is no tabu upon marrying into one's totem group. The tendency toward exogamy is in keeping with savage philosophy regarding the totem, which is that the totemites are bound together by a mystic tie which makes them somehow akin. Frequently members of a totem group believe themselves descended from the totem animal.

The psychological implications of totemism are numerous: the appearance of the totem to the totemite in dream or trance; the attribution to the totem of the qualities shared by the totemites.

Its religious significance has been urged by many. Some students of religion think totemism had its origin in the wor-

ship of animals, and consider sacred animals relics of a decadent totemism. In many cases the animal which is tabu, like the pig to the Hebrews, is tabu not because of uncleanness, but because of prior sanctity.

So, too, the eating of the animal some students of culture regard as a survival of an older method of placing oneself *en rapport* with the totem animal. By this means one imbibes its virtues, so that the communal eating of it is a sacrificial meal in which the worshipers literally imbibe the virtues of the god. But it is doubtful whether these theories would merit attention had they not occupied an important place in theories of religion, particularly in the theories of W. Robertson Smith, J. G. Frazer, and followers. The predominant interest which once attached to them is now largely in the discard —no doubt to be revived by some subsequent writer who approaches the problem from a new angle with the data of more recent ethnological researches. As regards origins, so much lies hidden that practically nothing can be said with surety, or even with comparative safety.

Totemism is a differentiating factor of social importance. In Central Australia it brings the individual within a sphere of influences determined by the totemic orientation, providing helpmates in certain emergencies, determining ceremonial activities, and, in some tribes to the south, choice of a mate. This centering of interests, obligations, rights, activities, and delimitation of a field of experience and "education" gives totemic trend to the psychic life of the individual as well as to his social career. In some tribes of Southeast Australia sex totems play an important rôle, among the Yuins the emu-wren being the men's brother, the tree-creeper the women's sister. The welfare of the sex is bound up with that of its totem: "The life of a bat is the life of a man," for the bat is "brother belonging to black fellow." On Gunpowder Creek the death of the men's totem heralds the death of a representative of the women's totem.

The "personal" totem, or guardian animal, found at Cape York and in Southeast Australia, provides extension of personality with potency for good as well as for ill. The Euah-

layis look upon the personal totem as a sort of *alter ego:* A man's spirit is in his *Yunbeai* and his *Yunbeai's* spirit is in him. An injury to his *Yunbeai* is an injury to himself. In this tribe the individual totem, or protective animal, pertains to powerful medicine-men who represent highly developed personalities.

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CHAPTER XXX

THE STATUS OF THE CHILD

THE savage has a lively sense of the importance of childhood and inducts the child into tribal life by lengthy formal rites which insure its future welfare and the welfare of the tribe. No people appreciates better than does he the social importance of childhood; none is more concerned to conserve these resources for future tribal life.

Even before the birth of the child the mother may have to abstain from certain foods or from designated activities which would, it is believed, unfavorably affect the unborn. From birth to adulthood magic assists the child in becoming accommodated to the new world of nature and of men. Nor is there a tendency to shorten the period of dependency upon elders. Children are not weaned until four to six years of age.

Youths are inducted into tribal life by story and tradition, by the recital of legend or myth designed to stir imagination and impart instruction. The Yoruba story about a little girl's adventures with a goblin, her reward for obedience and the punishment for disobedience, illustrates the type of instruction frequently imparted.

Yet children may not hear stories at certain times of the day, nor during certain days of the year, for this would make them lazy and inert. The Takelmas do not relate them to children in the daytime; to do so would cause the children to have long ears and to be bitten by rattlesnakes. Amusements, however, are cherished and are abundant. In many instances the playful activities of children are an imitation of the pursuits of adulthood and thus a preparation for maturity. Boys throw spears at a mark or at smaller animals; girls sew, cook, or play with dolls. Almost universally the children of savages are contented and well behaved. In decorum the

children of primitive folk rank above the children of Europeans, who do not deserve the compliment of "little savages." Seldom do savages punish children, though their treatment of them often is inconsistent.

Infanticide may prevail in a region where otherwise children are well treated. Usually, however, there are reasons for the practice: In Polynesia and in Australia it is usually owing to harsh economic conditions and to the necessity of keeping down the population. Among the Todas and the ancient Arabs, where polyandry was practiced, infanticide prevailed, in part, no doubt, the result of plurality of husbands, and also, in part, a cause of polyandry.

The treatment of orphans may be severe or indifferent, though parents treat their own children kindly. In some cases, in tribes in which no one considers it a duty to look after the helpless orphan, it is buried with the mother—as in parts of California. If, however, the infant is raised, much thought is given to its care, particular attention being paid to its food and drink. Thus the Hudson Bay Eskimos will not allow the infant to take nourishment until it is three days old, and meanwhile no water may touch it. They swathe the child in skins and cloths, sphagnum moss, changed daily, being used next the body. When the infant is three days old the shaman ceremonially washes it, the assembled women wishing it, if a male, an active life; if a female, expressing the hope that it will be the mother of many children.

The carrying of the child, as well as its care, falls to the lot of the mother. The San Blas mother carries the child on her hip, but the prevailing method in North America is the use of the well-known cradle-board, the children being taught to shift for themselves at an early age. Among the Flatheads and the Nez Percés, children as young as three years of age were mounted alone, generally upon colts, and were lashed to the saddle so that they would not fall off when asleep; for when overcome with fatigue and stupor they went to sleep, notwithstanding their precarious position. Asleep, they reclined upon the horse's shoulder; awake, they plied the whip vigorously, guiding the animal with great dexterity. Children

too young to sit in the saddle were carried in the cradle-board, either on the mother's back or suspended from a high knob on the fore part of the saddle. When about a month old Eskimo children are put into a jacket made from the skin of a deer fawn and a cap of the same material, the legs being bare, for the child is carried in the mother's hood. In some places the Eskimo women wear large boots, in which they carry a small child. In most Eskimo huts babies are kept almost constantly in the mother's hood until about a year and a half old, and then are allowed to play on the bed. After this age they are carried only in case they become too mischievous. If the mother is engaged at hard labor a sturdy girl carries the child.

The Dyak mother carries the infant in a curious portable cradle, a semicircular contrivance slung behind the shoulder, in which the infant sits erect with the legs hanging free.

The Tasmanian mother carried the infant astride her shoulders, holding its hand to keep it from falling. In New South Wales, the new-born infant is carried by the mother on a piece of bark until the child is strong enough to sit on her shoulder with its legs around her neck, holding to her hair to maintain itself upright.

Various methods prevail in South Australia: The child sits astride its mother's hip, clinging to her arm or neck for support; or it rides "pick-aback"; or it is laid across its mother's back, the legs of the child under one of her forearms, its head under the other. This permits the mother to use both hands.

Ainu babies are carried on the back. A plaited band resting on the head of the nurse is attached to the two ends of a short stick on which the child sits; another band passes round the child and is secured about the body of the nurse, so that the child will not fall from its precarious seat.

The Dyaks welcome the birth of a son by the beating of drums and the firing of guns. For three days the father may not drink water, and for five months he must sleep and eat in solitude, taking no salt with his food, not chewing sirih, and not smoking. At the end of this period there is a feast, at

which pigs and fowl are the principal items on the menu. At the end of the feast the infant is given a name.

The Dyak child is nursed until it is two years of age, or older. Children are usually laden with silver bangles, strings of coins, shells, beads, small bells, and other ornaments which rattle. They lead a happy life, full of play, and they are always ready for a game. When they attain sufficient strength they engage in trials of endurance and skill. One rarely sees a Dyak child who is not running, jumping, fighting, or wrestling with one of its companions, or else carrying the war among the pigs or the poultry. In the evenings they dance or play the nose flute. They soon learn smoking from their parents.

The dress of children is seldom the same as that of adults. Even when patterned after that of their elders it usually has some distinguishing characteristic. The Nenenots make the moccasins of young children more comfortable than those of adults, running a seam parallel with the toes, thus preventing creasing, with consequent discomfiture. The children are clad in the same manner as elders, with the exception that their apparel is less carefully made. Often their clothing is "glazed with filth and glistening with vermin," and they present a disgusting appearance. Infants usually have garments made in the "combination" style, the cap forming a separate piece.

As long as any portion of the navel string remains, the Central Eskimo child wears a strip of sealskin around the abdomen. A few days after birth the first dress of the child is exchanged for another. A small hood made from the skin of a hare's head is fitted snugly upon the head, a jacket for the upper part of the body is made from the skin of a fawn, and two small boots, made of the same material, the left one wreathed with seaweed, cover the legs. While the child wears this clothing, that which was first worn is fastened to a pole secured to the roof of the hut. Two months later the child gets a third suit of clothes. Then the second gown is exposed for some time on the top of the hut, the first one is taken down, and both are carefully preserved for a year. At the

end of this time both are once more exposed on the top of a pole and are then sunk in the sea, a portion of the first birdskin dress alone being kept, for this is considered a powerful amulet and is held in high esteem and is worn on the point of the hood every fall at the Sedna feast. At about the age of eight, boys dress like men, and at about the age of nine or ten, girls dress like women.

Where weather conditions permit, children of a tender age usually go naked. This is true of Australia, where, however, they sometimes wear a piece of worn-out rug. After the initiation ceremony, passed through at about the age of fourteen to sixteen, Moorundi boys may wear two kangaroo teeth and a bunch of emu feathers. Macquarrie parents decorate the hair of young children with fish bones, kangaroo teeth, and a bunch of emu feathers.

Quite commonly mutilations are practiced upon young children or upon the adolescent, usually as adornment or as record of status. The noses of Dieyerie children are pierced with wood when they are about five or six years old; at about the age of ten or twelve the two front teeth of both boys and girls are knocked out; when the beard of the boys appears the lads are circumcised. These mutilations, or similar ones, are most common in Australia and in Africa, particularly in East Africa.

Betrothal of children, often when mere infants, is widely practiced, particularly in Oceania, as notably by the Maoris and by most Australian tribes.

Child-marriage is most common in India, where arrangements for it usually are initiated by the father of the boy. If the Toda father succeeds in making arrangements for the wedding, he spends the night at the village of the girl, a few days later taking the boy to the home of his intended wife. They take with them the loin cloth, called *tadrp,* as a wedding gift to the girl, and the boy performs the salutation of *kalmelpudithti* (bowing and raising the foot of another to the forehead), to the girl's father and mother and her brothers. Father and son stay one night at the girl's village, returning home the following morning. Sometimes the girl goes with

them, but usually she remains in her home until she is fifteen or sixteen years of age. "From the time of child-marriage the boy has to give a *tadrp* twice a year until the girl is ten years old, when its place is taken by a *putkuli*. The *tadrp* (loin cloth) which is given at first is very small, worth, perhaps, only four *amas*, but as the girl becomes older it is expected that the garment shall become larger and more valuable. If any member of the girl's family should die, it is expected that the boy's family shall, on each occasion, give a sum of eight *amas* or a *rupee*. . . . Formerly the boy's family had also to contribute one of the buffaloes killed at the funeral, but the custom is now obsolete."[1]

Not infrequently children are called upon to participate in important ceremonies. Among the Todas a ceremony, called *notiteiti*, is performed by a little girl about six or seven years of age, when the inhabitants of the village are migrating. "Before leaving the village from which the people are coming, this girl will have been given food in the dairy. On reaching the new place, the girl plucks three blades of the slender grass called *kakar* and goes to the front of the dairy and sweeps the threshold with the grass. She does this with her right arm outside her cloak, and when she has swept she bows down with her forehead to the threshold three times. . . . The dairyman then gives her a small handful of butter, and the girl goes to the huts. Up to this time women have been waiting near the village, but when they see the girl has performed her ceremony they go to the huts and prepare the food."[2]

Among the Yorubas, at certain festivals, the young girls dance around the wooden image of the phallic god, Elegba, which is paraded in great pomp and pointed toward the young females, who respond with a dance.

Hair-cutting ceremonies are found in many areas. At the first head-shaving ceremony held by the Todas special bangles are put on the wrist of the child; it would fall ill if they were not used. In Siam, the first hair-cutting, which takes place when the child is twelve or fourteen years of age, is an im-

[1] Wm. H. R. Rivers, *The Todas*.
[2] *Ibid*.

portant ceremony. No matter how poor the parents of a child, they provide an entertainment; if rich, they spend a great deal of money on the affair. In Cambodia great importance is attached to the ceremony of hair-cutting. When a royal child reaches the age of seven years, the hair is cut by the king in the presence of the dignitaries of the land. In Panompin the ceremony is performed on an artificial mound euphemistically called a "mountain."

Initiation ceremonies for girls are found among the Andamanese, in Australia, Africa, North and South America, in fact, in some tribes in almost every large ethnographical area. In parts of Australia girls must submit to the multilation known as introcision, a practice correlated, to a large extent, with the subincision practiced upon males. At the second initiation ceremony undergone by girls in the Boulia district of Northwest Central Queensland, they are allowed to maltreat the men without limit, but after the introcision ceremony they must submit to intercourse with any man save one of the forbidden marriage class.

At the first menstrual period the young Chinyanja girl is taken in charge by an old woman. If the girl has frequently shown an insolent nature this old woman collects the matrons, who tie the girl in a bundle of grass and throw her into the water. When the sun becomes hot she is taken out, put on the bank, and given a severe rebuke. While the girl is being put through the initiation ceremonies she is given much good advice, such as proper respect for the old, for parents, and for seniors, as well as much advice which is silly or obscene. Having passed through the initiation rites, she is taken by the women to her future husband's hut, where *ndiwo* is being cooked. During the night the young wife puts some salt into the pot and next morning gives some of the food to her mother and to the woman who had charge of the initiation ceremony. This food the women rub on their feet and under their armpits. If a relation is abroad some of it is set aside for his return and no one gives him food or drink until he rubs this "medicine" on his feet.

Among the Yorubas an operation, corresponding to the

circumcision practiced upon boys, is performed on girls, who are incised by women operators shortly before puberty—that is, between the ages of ten and twelve.

The "menstrual feast" given by the Takelma father was one of three occasions when dances were held. Among the Nootka it was an elaborate affair. Girls' puberty ceremonies were found from the Northwest Coast to southern California. Among the Diegueño the girls' ceremonies differ widely from those of the boys. The most striking portion of the girls' ceremony consists in the "roasting." A large pit is dug, heated by a fire built over it, then partly filled with green bark. A number of girls, who previously have drunk tobacco crushed in water, lie at full length in the pit. Dry brush is piled over them. They are kept in the steam bath for a week or longer.

In primitive society as in civilization the child has a status peculiar to those of its age grade and is not merely a small adult. With few exceptions savages are kind to children, humor them in almost every respect, and are never tyrannical. There has not been a need for a child-labor law in any primitive group, for the savage has never exploited his children, has never expected them to perform tasks beyond their ability or happiness, has never lived by their labor. If he is cruel, the cruelty is the result of ignorance, superstition, or a wrong understanding. He is interested in their education, which is begun at a very early age—sometimes immediately after birth —and, in the main, does the utmost for their welfare. The lot of the savage child is relatively much better than that of the savage adult.

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CHAPTER XXXI

POSITION OF WOMAN

"If there be a word of truth in history," wrote Macaulay a century ago, "women have always been, and still are, over the greater part of the globe, humble companions, playthings, captives, menials, beasts of burden. Except in a few happy and highly civilized communities, they are strictly in a state of personal slavery. Even in those countries where they are best treated, the laws are generally unfavorable to them, with respect to almost all the points in which they are most deeply interested." The view that women are different from men in social or other qualities is widespread. The Chiquitos class everything as rational or irrational, placing women in the latter category; while the Australian and Polynesian opinion that the flesh of women is preferable to that of men is a doubtful compliment to the fair sex. The recognition of social discrimination based on sex is as old as Plato, who decries it, and as Campanella and More, who, like many later writers of Utopias, have been concerned about the position of woman. Explanation of the existing social inequality is more recent. Montesquieu refers it to a "natural inequality between the sexes." Another explanation is that the consequences of breaking sex moral laws are more dire in the case of women than in that of men, and more far-reaching discriminations are the result. Others, again, refer the harsher phases of woman's subjection to man to conditions in the social or economic world, declaring that the degree of subjection is closely correlated with the intensity of such conditions.

Whether or not woman's position is inferior to that of man, everywhere it is different from that of man. A cleavage runs through virtually every phase of social life, separating the women from the men, slightly or emphatically. In some areas they do not even eat together. At meal time the

women in an Eskimo village form a circle apart from that of the men. Women do not partake of the dinner which successful hunters eat immediately after their arrival home with game, nor, on most occasions, do the women obtain their share of the food until after the men have eaten; an exception being the concerted attack upon the frozen meat kept in the storerooms next to the hut. The feast of the Nenenots, who live adjacent to the Labrador Eskimos, and in many ways are like them, closes with an invitation to the women to participate; they have been excluded from the feast, but now are allowed to partake of the remnants left by the noble males. Even among the Iroquois, who accord to some of the women of the tribe an exalted political status, the men generally appropriate most of the fresh meat and fish, consuming it in a succession of feasts in which the women have no part. A benevolent male relation may save a portion for the women of his family, but aside from this, women who stay in the village sometimes eat no fresh meat from one year's end to another. At ordinary meals the men eat first and by themselves, the women and children later, by themselves. In South Australia the women get only the bones and fragments which the men leave after their repast. At Tana, in the New Hebrides, women and girls have their meals apart from the men, and do not drink the *kava* in which the men indulge. So among the Moors a separation at meal time is observed, the men eating first lest the women contaminate the food with the evil eye.

A distinction in the foods eaten by the respective sexes is not uncommon. Thonga women eat only the flesh of animals having hoofs, not of those having paws; Bangala women, and sometimes boys, but never men, eat the sweet potato. At Port Lincoln, Australia, the male of an animal is considered proper food for men, the female for women, young animals for children. Two species of bandicoot are tabu to young women, the eating of which will produce premature menses. Iguanas and lizards are proper food for girls, accelerating maturity; snakes are proper food for women, promoting fecundity. At Encounter Bay the roe of fish belong to the old men. Should

women, young men, or children, eat of them, they would become prematurely old. A species of fish abundant at certain seasons must be brought to the men, by whom they are cooked; women and children are not allowed even to approach the fires until the cooking is finished and the fish are cold. Then they may eat the fragments left by the men.

The contagion of woman's inherent uncleanness is one reason for the food tabus, while another is the monopoly of the better foods which the men reserve to themselves. A feeling of appropriateness, connected often with magical influences, is another source of the tabus, as, for example, that women may eat only the female of certain species.

Separate habitations for the sexes also are found. Among the Nagas of Assam two large houses are set apart, one as a sleeping-place for unmarried men, another for unmarried women. The Igorots of the Philippines have special huts for unmarried girls, and the men's council hut is forbidden to women. A village house for the exclusive use of men is found in New Guinea and in many parts of the Melanesian and Papuan area. Among the Chinyanja of Central Africa young unmarried girls occupy a special hut; in the camp is a *bwalo,* an open space, where the women pound the meal and do other work.

In the wigwams and tipis of North America a special place is assigned to women and another portion of the habitation to men. As a rule the man has the place opposite the door and behind the fire, the least disturbed by draughts, the most comfortable and cozy. In the Australian camp and family circle men and women have their respective quarters. Africa abounds with such distinctions. In most parts of savagery there is a fairly rigid separation of women and children from the adult male population.

At Tana, except during a marriage feast or other public festival, women are not allowed on the *marum,* the place used for public meetings. The south side of the island of Savaii is called the side of the women; the north side, the side of the men. The natives of the near-by De Peyster's Island aver that at death a man goes to his family, a woman to hers.

From sacred precincts women usually are excluded. This was true of the temple areas in Polynesia as of those among the Hebrews. The paths along which the Toda sacred buffaloes go when approaching or leaving the village may not be traversed by women or girls. When going to the dairy to receive milk, women must take special paths and avoid those used by the dairyman. They may not go to the dairy nor to other places connected with it, except at the time appointed to receive buttermilk from the dairyman. While the body of a deceased man is lying in one of the rooms of the dairy hut, women may not go beyond the outer room, although men may enter the middle room, only the dairyman being permitted to penetrate to the innermost room. The family house is divided into two portions, the division being indicated by a hole in the floor; only into the portion behind this division may the women go, their activities being limited to that part of the house.

In primitive life the voice of woman sometimes is heard in the councils of the tribe, often in times and places where we least expect it. In the warlike Iroquois League of the Five Nations three of the councilors of the gens were women. The women councilors nominated the *sachem,* or head chief of the gens. The women's council was held prior to and apart from that of the men. They then reported their decision to the council of old men, who passed final judgment. Any woman might come to the tribal council and express an opinion.

The council of the Huron was appointed by the women. There were also four women councilors chosen by the female heads of households. Four-fifths of the council were women. Among the warlike Maoris, women exercised great influence over the tribe, especially the widows of important chiefs and old women, some of whom possessed powers of sorcery. One might amplify such instances as the above, but they would still remain the outstanding exceptions of savagery rather than traits which characterize the status of woman in the political realm.

Yet woman is not devoid of social privileges or of partici-

pation in family affairs and in the larger social life. Usually she is the head in matters pertaining to the hut or household. Among the North American Indians the wife usually is consulted and her advice taken in matters concerning her, the family, or family possessions. Seldom will a man sell his own property without first consulting his wife, and almost never will he dispose of hers except at her bidding. Yet in general the position of woman in the community life is a subordinate one, a subordination shown in ways trivial as well as weighty. It has been frequently noted that among North American Indians, when on the march, women are assigned a position behind the men and carry the burdens. This is true generally of primitive peoples. But one might easily draw the wrong inference that this indicates subjection, even humiliation. As a matter of fact it is imposed by the conditions of savage life. How would the men be able to protect the party from the enemy, or take advantage of the presence of game, unless they were to the fore and free of burdens, which in consequence fall to the women? It must be admitted, however, that on peaceful expeditions as well, where attack is not feared and game is not anticipated, the women are similarly burdened.

If woman's activities in the ceremonial life are taken as a gauge of her larger social activities, hers is a narrowly restricted sphere. In Africa women generally are excluded from ceremonial life. Among the Yorubas women on penalty of death must keep within doors during the Oro celebrations, and must profess belief in the genuineness of Oro even though they know the statements of the men are false. In Ondo, where this annual festival lasts for three lunar months, women are obliged to remain within the house from daybreak till noon, while the men parade the streets, whirling the bull-roarer, dancing, singing, and beating drums, killing stray dogs and fowls, on which latter they afterward feast. In some parts of Africa, however, the women play an important part in certain ceremonials. The Thongas may not move from one village site to another until a certain old woman is ready to lead the migration and by her presence fortify the new location.

From North America there is a varied story. In many of the ceremonial organizations of the Plains area women are allowed to participate, even, in some cases, to be officers. From some ceremonial organizations they are excluded. In the Osage and other tribes are societies whose membership is restricted to women. From most of the ceremonial performances of the Southwest they are excluded, but in some they may participate. For North America generally, the Takelma tabu excluding women from the periodic tribal ceremonies is probably representative rather than exceptional.

Among the Samoyeds, when a shaman is making his indispensable tambourine, his wife, because *per se* she has a taint of uncleanness, must keep away; among the Lopars, no woman may touch a shaman's tambourine.

Some tribes express no preference for men or women as manipulators of magic, while others show a decided preference for one or the other sex. Among the Smith Sound Eskimos, women as well as men are *angakut,* though the Eskimos declare the former rarely are dangerous, since they lack the courage to do evil.

The Iroquois put to death, under the charge of using evil magic, both men and women. Among the Takelmas no distinction is observed between male and female shamans, neither sex being supposed more efficient than the other. Often there was ready co-operation between the sexes. If the shaman treating the sick person was a woman, her husband began the ceremony with a song, his wife following his lead; if the shaman was a man, his wife assisted in similar manner. In practically every North American tribe both men and women possessed magic power.

Yakut female shamans are inferior to male shamans except as regards mental diseases, a phase of practice in which women excel. A woman is called in only when no male shaman is procurable. The most frequent employment of female shamans is to foretell the future, or to find the location of things lost or stolen. Female shamans are found also among the Tungus, Samoyeds, Ostyaks, Buryats, Altaians, and Chuvashs. Among the Botyaks they ply their trade un-

hindered by any prohibition save one which denies them the position of chief shaman. The Kamchadal have no special male shamans, their place being taken by women specially gifted for the undertaking. Often old women are thus gifted, able to call up spirits and appropriate their services.

In primitive society a father is not always a necessity and ceremonial mothers may take the place of actual ones. At the court of Dahomey every man has at least one mother, though she may be twenty years his junior. "The King's actual parent is now alive; when she departs, he must supply her place by selection. For each monarch in the dynasty there is an old woman mother. The 'mothers' of high officials have corresponding honors. For instance, the she-Min-gau is popularly called the 'he-Min-gau's mother.' Many have two 'mothers,' an old one for the last, and a young one for the present, reign. Visitors communicate with the 'mothers' of their respective nations. 'Mothers' is the official title of the 'Amazons'—hence the custom." [1]

In Ashantee the queen mother exercises considerable power in affairs of state, though the wives of the king have no power.

The Yoruba mother cherishes her child and refuses comfort until the lost one is restored to her. In a Yoruba tale the mother refuses to receive any offerings, however lavish, in lieu of her child whom the *araurau* bird has carried off. No stigma attaches to the barren woman, nor do they, like the Egbas, attribute barrenness to bad health.

Australian mothers rejoice to the point of tears at meeting a daughter from whom they have long been separated and attachment of mothers to their children is marked. Angas says the women of New South Wales take great pride in making their children attractive in appearance, whereas Collins, not altogether inconsistently declares: "Never were women so inattentive as these. We often heard of children being injured by fire, while the mother lay fast asleep beside them, these people being extremely difficult to awaken when once asleep."

Barrenness is looked upon with disfavor by primitive

[1] Alfred B. Ellis, *The Yoruba-Speaking Peoples.*

peoples, as by most of the peoples of the older civilizations—for example, the Hebrews. The Eskimos of the Ungava district apply a term of contempt to the mother who bears only female children, and Rasmussen has said of the Greenland Eskimos that the only women who aroused his pity were the barren. The souls of women who die in childbirth go to the lowest place, but this lowest place corresponds to our "highest heaven." Among the Central Eskimos the souls of such women go to the upper world, which is the "heaven" in this locality. Eskimo women are not prolific and many are barren. A woman is seldom a mother before the age of twenty.

The Wyandot mother is the recipient of presents from the prospective son-in-law; to her house the groom goes after marriage, there to take up his abode at least for a while. The Iroquois mother and her relations control the children, give them their names, raise them, attend to their marriages and funerals, adopt strangers—in short, manage the general activities of the household.

The Osages, it is said, frequently kill the mothers of twins, but if so in this respect they are unique among American tribes. From her mother the young wife receives instructions about the tabus to be observed during pregnancy, that no misfortune befall the child through carelessness of the expectant mother. Frequently the mother assists at the parturitions of her daughter. When on the eve of delivery the Yana wife sends her husband to bring her mother to her.

The treatment of women must be considered in the light of the prevailing moral ideas and the enlightenment of a people. By this test the primitive woman is usually as well off, relatively, as are her European sisters. True, she sometimes has a hard lot. But so, sometimes, do the men. If she works hard at home, they frequently undergo great hardships in the hunt for game and encounter dangers in the pursuit of war. The ordinary visitor to a savage community sees the women at work, but does not witness the hardships of the men.

Even so, it is true that the world of savagery, as much perhaps as the world of civilization, is a man-made world, and

woman is subject to the power of the male. Undoubtedly the male has used might in determining the issues of right, and woman has had to accept his decisions.

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CHAPTER XXXII

BIRTH RITES

Festivity and ceremony are features of every savage community, whether it be otherwise a placid one, or beset with war and recurrent famine. The crises of life and death are met in ceremonial and formal manner. Birth, a phenomenon of mystery, is fraught with dangers of various complexion. The event is a test of the mettle of the savage, a strain upon the nerves, and resource is had to social measures as well as to the realm of the occult.

If we are to believe Herodotus—and we cannot always do so—"The Trusis have also this custom: When a child is born, its kinsfolk sit around about it, and lament for all the evils that it must endure now that it is born into the world, recounting all the troubles of human life. But a dead man they bury with much laughter and joy, for they say that he hath been delivered from all manner of unhappiness and is now in great joy and felicity." Such is not the custom of any tribe known to the ethnographer.

Almost always birth is regarded as a crisis—for the infant, for the mother, and for the group. Uncleanness is an attribute of birth, and numerous precautions must be taken to protect those concerned.

As a prophylactic against two specific diseases the Chinyanjas steam the infant. This done, the dung floor of the hut is renewed, and baskets, potsherds, spoons, everything which was in the hut during the mother's *accouchement,* is burned. The fire is raked up and the ashes removed; when the *mkuzi* belt is placed around the infant's wrist, the fire is extinguished and rekindled from that of some other hut. The father comes and stands near the doorway. Men make two incisions along each of his legs, four small slashes on his chest, and two on his back. Into these they rub a medicine which will protect

him from a disease in the legs known as *chinyalo,* which otherwise he would be liable to contract should he step over the place on the veranda where the umbilical cord and the afterbirth are buried. To the old women who place the child in the arms of the father, who then sees it for the first time, he makes a present of beads.

Among the Yorubas, seven days after birth, if the child be a girl, nine days, if a boy, the priest or medicine-man comes and sacrifices a cock and a hen to Ifa and Olori, the spirits which dwell in the head of the child; after which, in order to prevent Elegba from interfering with mother and child, the entrails of the two sacrifices are sprinkled with palm wine and are taken outside of the house and placed before his image. The water which stands in the earthen vessels placed in front of the images of the gods is brought to the house and thrown upon the thatched roof; as it drips down from the eaves mother and child pass three times through the falling drops—a purification. The medicine-man next takes the water of purification with which he bathes the head of the child, repeating three times the name by which the infant is to be known, then holds him so that his feet touch the ground—thus initiating him into this world and its sorrows and joys. When these ceremonies have been performed the fire is extinguished and the embers are carried away; the house is carefully swept, live coals are brought, and a fresh fire is lighted. When the new fire has been kindled another sacrifice of fowls is made to Ifa, and the ceremonies are complete.

In the Fjort people collect around a woman in childbirth and fire off guns to ease delivery. She is attended by her mother and other female relations. The child is washed, sometimes in palm wine, by the attendants, and the mother is given a hot bath.

Among the Euhalayis of Australia the arrival of the child is facilitated by entreating chants delivered by the grandmother or other female relation: "Come now, here's your aunt waiting to see you!" "Here's your sister!" "Make haste, the fruit is ripe. The flowers are blooming. The grass

is waving high. The birds are all talking. And it is a beautiful place, hurry and see for yourself!"

For a month or six weeks after giving birth to a child the Kachari mother is unclean and subject to certain restrictions. She may not approach the domestic altar commonly found inside of a Kachari's house, on which ordinarily she offers eggs, chickens, etc., in time of trouble. The use of a "water of peace" terminates the tabus. With this water the priest sprinkles freely the mother as well as the house and its contents, after which the mother is at liberty to resume social intercourse with neighbors.

Not infrequently numerous tabus are imposed upon the father, infraction of which brings misfortune to mother or child. After the birth of a child the Mandan father may not bridle a horse, that is, may not fasten a lariat to the lower jaw of a horse, for if he does so the infant will die in convulsions.

For five or six days after the birth of a child the Yurok father eats apart, touches neither meat nor fresh salmon, and instead of water drinks thin acorn soup. These restrictions apply to the mother for fifty days, or, if it has been a stillbirth, for sixty days, she remaining meanwhile in a separate hut. The Yuki mother of a new-born child eats apart, though she is not compelled to leave the house. Among the Northern Maidus a tabu rested upon both parents for a ten-day period following the birth of the child, the father occupying the seclusion hut with the mother. In the mountain districts occupied by these tribes the parents fasted and rested until the remnant of the umbilical cord fell from the child. Following the birth of a child the Yokuts parents ate no meat or hard food, neither did they cook, hunt, work, or touch tools. The tabu might apply for several months, or until the remnant of the navel cord dropped off. The Mohave mother ate neither salt nor flesh for a month after the birth of the child, during which time both she and the father refrained from smoking.

When a child is about to be born the Teton Dakotas set up a pole inside the lodge, opposite the entrance, decorated

with eagle down at the top, as at the puberty ceremonies. Soon after its birth they paint a certain pattern in vermilion on the face of the child; if they neglect to do this the infant becomes blear-eyed or falls sick. When the navel string is severed, they make a small bag of deer-skin, cut in the shape of a tortoise, and in this, along with sweet-smelling leaves, place a piece of the navel string. The infant carries this bag on its back. A part of the navel string is buried. When a child is mischievous the people say: "He is hunting his navel string." The custom of preserving the navel string is common to much of the Plains area, is found in northern California, over the greater part of Africa, in many Australian tribes, and among the peasantry in Europe. The umbilical cord of a Yurok child is severed carefully and preserved in the house for about a year. When the time has come to wean the child the father takes the remains of the umbilical cord to a ridge, where he splits a young living fir, inserts the cord, and binds the sapling together so that the tree will hold it. When he returns after performing this duty the child receives the first food other than milk. The Yukis carefully keep the child's navel string, which they lay in a wet skin or rag that is squeezed over the body of the child should it be ill. The Shastas burn the umbilical cord or carefully wrap it and secrete it at a distance from habitations. As among Plains tribes, the mountain Maidus tied the umbilical cord to the child's cradle. The Chukchansis buried the cord, though the Tachis attached it to the child, who wore it over the abdomen.

One of the most interesting customs in connection with childbirth is the couvade. Couvade is the custom of the father taking to bed and behaving as if he had given birth to the child. Conversely, in most cases the mother takes care of the household as usual, providing the food, doing the cooking and the housework, and waiting upon her husband. It is possibly referred to in the old French poem of "Aucassin and Nicolette," delightfully translated by Andrew Lang. It flourishes among several tribes in British Guiana and in the Dutch East Indies.

By Bachofen, Tylor, and others, couvade has been interpreted as a record of transition from matrilineal to patri-

lineal descent, a view strengthened by the fact that it is found only in patrilineal tribes or in those which show indications of passing from matrilineal to patrilineal descent. At the same time it is almost always closely bound up with the idea that the actions of the father greatly influence the child. The father may not hunt, for the spirit of the child might accompany him and lose its way or suffer injury. He may not cut with a sharp instrument, for fear of injuring the spirit of the child. Most of the tabus upon his action are inspired by, or at least are supported by, the belief that the fate of the child is at this time vitally dependent upon the behavior of the father. This philosophy, no doubt, turns attention to the importance of the father and paves the way to the patrilineal descent which Bachofen and Tylor infer is the cause and not the effect of couvade.

However that may be, childbirth is a time of tabus which affect a great many people. Usually delivery is in seclusion. The Australian woman goes apart in the bush with an old woman who acts as assistant; the African woman is alone in the hut with the nurse; if the mother does not leave the house and the family remain, she is placed apart to herself.

But most stringent is the tabu upon the presence of the father. Seldom is he allowed to be present, and not infrequently, as in the Plains area of North America and in some African tribes, he may not see the child until the latter is at least a few days old. The philosophy which lies back of these tabus upon the father is a matter of conjecture.

The tabu often applies to the child as well. It may not be taken into other huts, nor into the presence of other people, until it is at least a few days old. The underlying idea is the danger inherent in childbirth, which is regarded as mysterious and uncanny. It is best to be on the safe side and avoid undue risks.

The use of magic is frequent. Many magical ceremonies insure the mother an easy delivery. Not infrequently this involves certain behavior upon the part of the father, whose conduct has much to do with the delivery of the child. Thus the Australian father walks rapidly to and fro not far from

the place of *accouchement,* that the child may be inclined to come into the world quickly.

Many magical acts are designed to secure good fortune for the child. This, too, involves primarily conduct upon the part of the mother and the father. Often the medicine-man helps to insure success for the future hunter or housewife.

Amulets are placed upon the child, or substances containing magical virtues are brought into apposition with it. The Chilkats rub the child's nose with the nose of the wolf, so that the child will be a good hunter when he grows up and will have a nose for game as keen as that of the wolf.

Widely spread is the view that the child at birth is not a member of the society of living beings, or at least is not a member of the tribe and must be admitted into it. Admission into the tribal circle is symbolized and is accomplished by the visits of friends, by formal recognition of the child by the father, by presentation to a "god" or "power," by ceremonies of admission into the tribe, and by formal admission into the religious cult. The latter, in the form of baptism, still plays a large part in many branches of Christianity, as well as in other religions. During the first five or six days of its life the Yurok child may not take nourishment, for should it do so its jaws would be affected and it would soon starve. Meanwhile it is given a little water in which hazel or pine nuts have been rubbed together, the liquid having a milky appearance.

Childbirth removes from the social circle those immediately affected, and often it is necessary to readmit the parents. To accomplish this there is a rite or ceremony, frequently with magical accompaniments, through which the re-entry of the parents to everyday life is made possible.

Since at birth the Omaha child is not a member of the tribe, nor even of the group of beings living on the earth, it is necessary to induct it into the world so that it can cope successfully with the difficulties which beset it on every side. Announcement cards are not sent to friends, but there is a ceremonial announcement, an introduction to both the tribe and the universe. The ceremony of introduction is held the eighth day after birth. The medicine-man upon whom this

duty falls, stations himself at the door of the tipi in which the child lies, raises his right hand toward the sky, palm outward, and intones the following in a loud, ringing voice:

"Ho! Ye Sun, Moon, Stars, all ye that move in the heavens,
I bid you hear me!
Into your midst has come a new life.
Consent ye, I implore!
Make its path smooth, that it may reach the brow of the first hill!

"Ho! Ye Winds, Clouds, Rain, Mist, all ye that move in the air,
I bid you hear me!
Into your midst has come a new life.
Consent ye, I implore!
Make its path smooth, that it may reach the brow of the second hill!

"Ho! Ye Hills, Valleys, Rivers, Lakes, Trees, Grasses, all ye of the earth,
I bid you hear me!
Into your midst has come a new life.
Consent ye, I implore!
Make its path smooth, that it may reach the brow of the third hill!

"Ho! Ye Birds, great and small, that fly up in the air,
Ho! Ye Animals, great and small, that dwell in the forest,
Ho! Ye insects that creep among the grasses and burrow in the ground—
I bid you hear me!
Into your midst has come a new life.
Consent ye, I implore!
Make its path smooth, that it may reach the brow of the fourth hill!

"Ho! All ye of the heavens, all ye of the air, all ye of the earth:
I bid you all to hear me!
Into your midst has come a new life.
Consent ye, consent ye all, I implore!
Make its path smooth—then shall it travel beyond the four hills!"

The Hopi baby is washed and dressed by the paternal grandmother or one of her sisters, the woman making four marks with corn meal on the four walls of the room on the day of its birth. One of these she erases on the fifth, a second on the tenth, a third on the fifteenth, and the last of them on the twentieth day of the child's life. On each of these days the head of the child and that of the mother are washed with yucca suds, the purifactory solvent of the Southwest. The twentieth day marks the end of the lying-in period for the

mother; then the grandmother comes early in the morning, bathes the child, and puts corn meal on its lips, accompanying this act with a prayer that the child may reach an old age, then giving it a name. Women who are members of the father's clan come in, one at a time, bathe the child, and bestow additional names—for the child shall not suffer from paucity of names. The paternal grandmother then goes with mother and child to the eastern edge of the mesa, arriving there about sunrise, taking with her the two ears of white corn which have lain near the child during the twenty days of its life on earth. After placing the ears of corn on the child's breast, the grandmother waves them toward the east, then strews corn meal toward the sun, and places some on the child's mouth. These rites are accompanied by a prayer in which the woman utters the various names which have been bestowed upon the newcomer. Then the mother goes through a similar ceremony, uttering a similar prayer. Thus the child is introduced to the sun and to the tribal food.

Birth, then, is a crisis. It is a crisis in the life of the newborn child and in the lives of parents. It is dangerous, mysterious, uncanny, and must be treated accordingly. Above all, one must see to it that the new arrival is properly introduced to the world of things and of men in which he is to live a life patterned after that of the members of his group.

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CHAPTER XXXIII

MARRIAGE RITES

MARRIAGE is one of the crises of life and must be celebrated with appropriate rites. Its purpose is to unite the couple in lifelong intimacy and cement the tie which shall bind them together "for better or for worse." It also establishes new relations within the social group, and it is important that its members be apprised of them. Hence marriage is a social affair as well as the concern of two individuals, and its celebration is almost always a social rite, usually tribal in nature, though sometimes regarded as a matter concerning only the kin of bride and bridegroom.

Sometimes the selection of wives lies largely in the hands of the old men, who, as in Australia, may appropriate the younger women, assigning to the young men the old women whom they have discarded. The Euahlayis say these young men were in love with said old women when the former were previously on earth, but that the lads died before passing through the initiation ceremony and so could not marry until a later incarnation. Thus do vested interests justify themselves by far-fetched explanations.

Decisions about marriage are usually made by the fathers of the parties concerned, though sometimes the mothers arrange it. Among the Maoris, however, the marriage is arranged by the brothers of the bride, the girl's parents having little to do with it. Her relations prepare the house in which she is to live and conduct the bridegroom to it.

Among the Kacharis the parents of a boy seek a suitable wife for him when he has attained the age of fifteen to twenty, and then endeavor to raise the stipulated bride price. They visit the parents of the prospective bride, present them with various articles, such as rice, liquor, betel nuts, and formally ask the daughter's hand for their son. If the girl's parents

accept the proffered articles this signifies that the proposal is looked upon with favor. Elders or leading men of the village who are present witness the marriage contract.

But individual choice is not always negligible. Kachari young people sometimes take the matter into their own hands. Such a marriage, though irregular, is valid. The bride's parents claim from the bridegroom a marriage portion larger than usual, and, if their demands are complied with, there is seldom further objection to the union. Or, if the regular proceedings have been gone through and the bridegroom's parents are unable to pay the stipulated bride price, the young man may offer his personal services in the house of the bride's parents. The prospective bridegroom may sever all connection with his family and identify himself completely with that of his bride, in whose house he serves until the death of her parents. Then he shares equally with his wife in their property, though he retains no claim to that of his parents or other relations. So in other parts of the world in which one's mate is chosen for one, the boy or the girl may defy authority and choose a partner of his or her own liking.

Hopi young folks themselves arrange their marriages. If the young couple have made up their minds, and the young man has acquired property, the parents of the two are informed of the decision. The mother of the girl accompanies her to the house of the young man, carrying a tray of corn meal, which she presents to his mother, and then returns home. The girl, however, remains and grinds corn for three days. On the fourth day the relations of the couple assemble at the bridegroom's house, where the future mothers-in-law prepare two large bowls of yucca suds. With one of these the mother of the girl washes the boy's head, while with the other the boy's mother washes the girl's head, other female relations assisting in rinsing the suds from their hair. This completes the marriage ritual.

In Australia betrothal commonly takes place at an early age, independently of the consent of the girl, perhaps without the consent of the boy. In the Kunandaburi tribe female infants are betrothed by parents to men, or to boys, who claim

them when the girls arrive at the age of puberty, or before. In the Larrekeya and the Wogaits tribes girls are given to men at an early age. Lumholz suspected, among the natives at the Herbert River, the existence of regulations by which girls, from time of birth, are betrothed. Infant betrothal is common among most of the Kamilaroi tribes. In the Geawegal, marriage was ordinarily by gift of the girl and by consent of the respective fathers, in case the future husband was still a mere boy, and was arranged years before the time for marriage. Thus, girls in childhood commonly were affianced to men much older than themselves.

In West Australia two friends agree that if the first child of the one be a girl she shall become the wife of the other. If the friend who benefits by this arrangement has seven sons, the eighth child being a girl, she will be the wife of her father's said friend.

When she has arrived at the age of marriage, the New South Wales girl, who is betrothed when very young, is taken to the camp of the future husband, her mother forearming her with a yam stick and providing her with a bag in which to carry her possessions. In southwestern Victoria, a man who desires a girl in marriage does not always consult her wishes nor procure her consent, but makes his proposal to her father through her uncles or her cousins. If the father approves, he informs the suitor. To this decision, whether she admires the man or not, the girl must submit.

Dieri children are betrothed by their respective mothers with the concurrence of the brothers of the mothers, the respective fathers, as also in other New South Wales tribes, having no part in the arrangement. In Central Australia, the common method of getting a wife is by arrangement with the brothers or fathers of the man and those of the woman. In the Wotjobaluk, the father of the bride takes the girl to the camp of the bridegroom. At about ten paces from the camp they sit down, the father's sister saying to her: "That is your husband; he will give you food; you must stop with him." "Capture" seldom is employed in the Central tribes, though it is common on the Herbert River.

Marriage by "capture" is common in West Australia, though the woman who submits usually fares badly. Among the Kurnais, elopement was the common way of obtaining a wife, though capture was sometimes resorted to, and, less frequently, exchange or gift. The Port Philip tribes were acquainted with all three methods of securing a wife, though we are not informed as to relative frequency. Elopement is possible only through concurrence of the girl, and seems to involve keeping knowledge of the plans from the girl's parents. In Gippsland marriage by agreement was the rule, pursuit and capture being feigned.

In Australia choice of a partner is influenced by at least two considerations: the personal attractions and the personal worth of the suitor. If a woman is "good-looking," all the men want her; she generally goes to the strongest and most influential, and may change husbands many times during the course of a lifetime, even contrary to her wishes.

SYMBOLISM IN MARRIAGE RITES

Frequently the celebration of marriage is designed to establish by magic an intimate bond between bride and groom. Among the Maoris the *whaka-moe,* or sleeping together, constitutes the marriage rite. In Indonesia a portion of the marriage ceremony consists in the bride and bridegroom eating rice or chewing betel together. Among the Jagir Duseens, of North Borneo, the marriage is performed without a public gathering or feast, in the presence of the two families, the rite consisting of transferring a drop of blood from a small incision made with a wooden knife in the calf of the man's leg to a similar incision in the woman's leg. Drinking together consummates the Ainu marriage. The Kacharis gather for a feast at the house of the bride, the food and drink for the occasion being provided by the bridegroom and his relations. When the wedding feast is prepared, the village elders sit in front, the younger people behind, each guest supplied with a brass plate or with a plantain leaf. On these plates the bride places rice and curry, serving the elders first. When all have been provided for, she makes obeisance, and may kneel in

their midst for their sanction, the bridegroom, if present, kneeling with her. Thereupon one of the village elders makes a short address on the obligations of the married state, at the conclusion of which he wishes every blessing for the newly married pair. "So may it be," is the response from the assembly.

The Ahom Chutiyas observe a form of marriage known as *chaklang*. This consists of an interchange of presents between bride and bridegroom, after which they formally inhale the fragrance of turmeric together. This is followed by the tying of the nuptial knot and the distribution of simple refreshments among assembled friends and relations.

"With the Hindu Chutiyas there is a still more elaborate ceremonial in vogue, one which approximates somewhat closely to the orthodox Hindu ideal. The *chaklang* form is superseded by that of the *hom—i.e.,* libations of clarified butter (*ghi*) are formally poured in sacrifice on the sacred fire, and certain special mantras are recited by the officiating priest in the presence of the bride and bridegroom, who are formally seated by his side, and formally united by the tying of the nuptial knot. It is said, further, that matrimonial etiquette requires postponement of consummation of the marriage for a week or so after the completion of the wedding ceremonial." [1]

In a formal wedding among the well-to-do Jajong, "a square inclosure is formed by planting a plantain tree at each corner, and within this inclosure are placed sixteen lighted lamps and sixteen earthenware pots full of water, the bridegroom taking his stand in their midst. The bride then formally walks around him seven times, and then finally takes a seat at his left side, her face turned toward the east. No mantras are recited nor is any Brahmin present, but some village elder sprinkles water over the couple from one of the water pots and the ceremony is held to be complete." [2]

The Dyak bride and bridegroom are placed face to face on a copper tray, on which they sit holding each other by the hand. An old man smears the hand of the bridegroom with

[1] Endle, *The Kacharis.*
[2] *Ibid.*

blood, then the hand of the bride. The following morning bride and bridegroom bathe together. The magic underlying these rites is reflected in the prohibition that previous to the marriage ceremony the betrothed couple may not eat off the same plate nor take betel and sirih from the same box.

Many customs are interpreted, perhaps frequently without sufficient justification, as survivals of marriage by capture. Occasionally the Moran bridegroom carries off his bride by force, especially during the April festivities, such a marriage being afterward recognized by the girl's parents. The Ahom Chutiya bridegroom carries off his bride through a hole cut in the corner of the house. In Southeast Asia there are ceremonial abductions of the bride, or a sham fight between the relations of the bridegroom and those of the bride, in which, of course, the latter have the worst of it and the bride is secured and carried off. Similar customs survive among the Slavs, and the Roman custom which prescribed that the bridegroom should carry the bride over the threshold is by some interpreted as a survival of an earlier marriage by capture—as is the story of the rape of the Sabines.

It is doubtful, however, whether these customs are survivals of marriage by capture. Probably they have their origin in a real or assumed reluctance of the bride, which is thus ceremonially overcome.

EXAMPLES OF MARRIAGE CUSTOMS

Purchase of a wife is general throughout South Africa, the price of a bride being reckoned in cows or oxen, the act of living together constituting the marriage ceremony. The Wa-Langulu bridegroom must pay to his father-in-law a marriage fee of a tusk of "male" ivory weighing about seventy pounds, and to his mother-in-law a cow tusk. A peculiar form of satire and insult is given by Thonga relatives to the bride and bridegroom. The women who take the bride to her husband on the wedding day sing this song: "Let us go with her, but let us go back to our homes!" the insinuation being, "She is going to find trouble; we won't follow her as far as that!"

The Mandingo intended bride brings her intended groom a

little water in a calabash, and kneeling down before him desires to wash his hands. "When he had done this, the girl, with a tear of joy sparkling in her eyes, drank the water—this being considered the greatest proof she could give him of her fidelity and attachment." Mungo Park gives the following description of a wedding ceremony among this people:

"In the evening the tabala, or large drum, was beat to announce a wedding, which was held at one of the neighboring tents. A great number of people of both sexes assembled, but without that mirth and hilarity which takes place at a negro wedding: here was neither singing nor dancing, nor any other amusement that I could perceive. A woman was beating the drum, and the other women joining at times like a chorus, by setting up a shrill scream, and at the same time moving their tongues from one side of the mouth to the other with great celerity. The wedding drum continued to beat, and the women to sing, or rather whistle, all night. About nine in the morning the bride was brought in state from her mother's tent, attended by a number of women who carried her tent (a present from the husband), some bearing up the poles, others holding by the strings; and in this manner they marched, whistling as formerly, until they came to the place appointed for her residence, where they pitched the tent. The husband followed, with a number of men leading four bullocks, which they tied to the tent strings; and having killed another and distributed the beef among the people, the ceremony was concluded."[1]

On the Gold Coast a girl about to be married was taken first to a certain rock, thence to her husband's home. An offering of rum was poured into a hole in the rock and a piece or pieces of white cloth laid upon it. This was believed to promote peace in the household of the future wife and also to guarantee a safe recovery from the dangers attendant upon maternity.

Among the Wishrams, the father of the boy arranges for the "purchase" of the bride, paying, perhaps, slaves and horses. The father of the bride may send to the father of

[1] Mungo Park, *Travels in the Interior of Africa.*

the groom, as if in exchange, ox-hide or other blankets. On the day set for the wedding, the relations of the bridegroom meet the bride at her house, and the father of the groom escorts the latter. He lives with his wife's people for a while, later he and his wife taking up their abode in his father's house.

Among the Takelmas a girl was purchased (with dentalia) from her father by the father of the prospective groom, and was taken to her future husband by the respective fathers. This might happen in spite of the fact that neither partner to the marriage was pleasing to the other. Among the Yanas the prospective groom said to his promised bride: "I will give you as food whatever I hunt. I shall not whip you. You on your part shall not scold me." To this the bride made reply: "If I have a child we shall go off to your house. Stay now in my house." His reply was: "Yes, I will stay in your house. Now I shall go out hunting." To which she responded: "Now we shall grow old together. Perhaps it will be I who shall die first, perhaps it will be you." Sometimes the mother compelled the daughter to marry a certain man because he was recognized as a good hunter and would be a good provider for his mother-in-law, in whose house he was to live.

Among the Osages, when a match has been decided upon, the two families palaver over the price of the girl. When the price has been decided upon it is made public by announcement. At a subsequent meeting the horse and property to be given in payment are brought by the man's family and divided among the members of the girl's family. Thereupon they settle upon a day for the marriage. When the day arrives the girl, "dressed in her best finery and armed with a gun, is mounted on a pony and is brought toward her prospective husband and his family until within a short distance. Suddenly she fires the gun and dashes off as if to escape. The bridegroom's family, at this signal, start in pursuit of her and everyone tries to be the first to seize her. The first to reach her, if a man, gets her horse; the second, the gun. If a woman be first, she gets the bride's finery and outer clothes; the second woman gets what is left. The bride when caught is

brought to the lodge of the groom's family. Here the couple dine together and the two families exchange presents. During the ensuing night the couple sleep together in the groom's lodge. The next morning they are escorted to the bride's mother's lodge. A fine horse is then presented to the girl's brother by the family of the groom."[1]

After the planting of the corn the Sacs and Fox hold a crane dance in which the women dress in their best, decorated with feathers. At this feast the young man selects the young woman whom he wishes for wife. The brave informs his mother, who calls on the mother of the girl. If arrangements are made a time is appointed for the young man to come to the lodge. "He goes to the lodge when all are asleep (or pretend to be), lights his matches, which have been provided for the purpose, and soon finds where his intended sleeps. He then awakens her, and holds the light to his face that she may know him—after which he places the light close to her. If she blows it out, the ceremony is ended and he appears in the lodge next morning as one of the family. If she does not blow out the light but leaves it to burn out, he retires from the lodge. The next day he places himself in full view of it and plays his flute. The young women go out, one by one, to see who he is playing for. The tune changes, to let them know that he is not playing for them. When his intended makes her appearance at the door, he continues his courting tune until she returns to the lodge. He then gives over playing and makes another trial at night, which generally turns out favorable."

When a Northern Saulteaux wished to marry a girl he asked her father for her. "If the father approved, an interview was appointed for which the lover prepared by taking a sweat bath. He then came into her presence and sat on the ground, smoking a pipe. As he smoked, he took one hundred small pieces of wood about an inch in length and threw them at her, one by one. She tried to catch these in a bark bowl, and for everyone which she caught her lover had to make a present to her father, these presents being considered as pay-

[1] Frank G. Speck, In *University Museum Publications.*

ment for the daughter. The young man then gave a feast to which the entire family was invited. After the feast they danced and sang their war songs. Presents were exchanged between the lover and the relations of the young woman. The father then covered the lovers with a beaver robe and gave them a new gun and canoe."[1] The woman went to live in the lodge of her husband. If the girl had no father, her oldest brother-in-law gave her in marriage; if there was no brother-in-law, this right fell to the oldest brother. Polygamy was common.

Earlier theories of marriage were concerned largely with matters of presumed origin and development. Lewis H. Morgan thought that man had started out like many of the animals, in promiscuity, then had developed a group marriage, in which a number of men were husbands of a number of women. This, in turn, was presumed to have given place to a plurality of husbands, polyandry, which was followed by a plurality of wives, polygyny, the final stage being that of monogamy, which prevails in the higher civilizations. For a time it was thought that certain Australian tribes practiced occasionally the promiscuity which Morgan had surmised to be the original condition of mankind. Moreover, he thought he had discovered group marriage in Polynesia.

But we know no tribes which practice promiscuity, and the partial lapse into it which is sometimes apparent is probably to be interpreted otherwise than as a survival of this presumed early form. It is certain, too, that the presumed group marriage did not exist in Polynesia. Morgan misinterpreted the significance of the customs which he thought indicative of that practice. Polyandry, polygyny, and monogamy are the only forms of marriage which we know actually existed. The interpretation of the levirate, the requirement in Leviticus that a man marry his brother's childless widow, is not evidence of a survival of polyandry. Its motive was the desire that the deceased might, if only by fiction, have issue—as is clearly expressed in the Biblical injunction. On the other

[1] Alanson Skinner, *The Cree and Northern Saulteaux.* In *AM.*

hand, Morgan was correct in inferring that polygyny tends to give place to monogamy as a culture attains a higher development, though monogamy prevails in most primitive cultures.

It is sometimes stated that each form of marriage ceremony represents a stage in a unilinear evolution of that institution. But this cannot be proved, nor is it probable that such is the case. Rather it is probable that the institution has developed in different directions in various culture areas.

In many cases the similarity in the marriage rites of widely separated tribes is due to similarity of psychological conditions. In other cases the form of marriage has spread from one region to another. Each problem must be considered on its own merits by the logic applicable to such instances.

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CHAPTER XXXIV

DEATH RITES

"Although dead they live in our memory and will live in the memory of times to come."—Benedetto Croce.

"The dead have no life but that which the living lend them."—Sir Thomas Browne.

Of burial customs in Paleolithic times there is no evidence beyond the suggestion that orientation, laying the head in the direction of a certain point of the compass, probably was employed and that man believed in survival of the soul. Some Paleolithic skeletons were covered with red ocher. From Neolithic times, however, there is considerable evidence. A Neolithic skeleton unearthed in northern Italy in 1884, at a depth of over eight meters, was extended on the back, the head covered with red ocher. Three skeletons found in 1892 are oriented with the feet toward the west, two lying on the left side, one on the back, two of them holding a flint knife in the left hand. Shell ornaments and red pigments accompany the burial. In another grave the bodies are wrapped in ornamented skins and are accompanied by flint implements. The grave is in a cave, possibly a former habitation of the deceased. In the caves of Tuscany the disturbed nature of the deposits leaves no evidence as to orientation. In the cave burials on the coast of Liguria, usually the body lies on the left side in contracted position, in some cases protected with a casing of rough stones and provided with considerable funeral furniture, usually including pieces of red ocher. The graves of infants and of young children are without the casing of stone, seldom containing much furniture. In some cases the body lies on the left side, legs contracted, left hand under the head, feet toward the sea. On the forehead of one skull there is a large irregular patch of red ocher.

NORTH AMERICA

Among the Nenenots, or Naskopis, the dead are mourned for according to the position they occupied in life, a favorite child often causing an alarming amount of grief in the mother, who mourns for many days, constantly bewailing her loss, reminding auditors of the excellent traits of the child which grief calls to mind.

Among the Greenland Eskimos, if the deceased be a man, his team of dogs is slain and the dead dogs are harnessed to his sledge, which is placed by the grave. If the deceased be a woman, only one dog is killed. Among Labrador Eskimos as soon as death is certain the household sets up an unearthly wailing, the women tearing their hair, beating their breasts, and otherwise giving vent to grief. The virtues of the deceased are lauded and his vices forgotten. In come the villagers to add their contribution to the general woe. A watch is kept by two men during the night; a man might be overcome by the ghost were he alone. Next day the body is taken out through the window or through a hole in the side of the house, and is buried. It is not taken out through the doorway lest the ghost find its way back. Unexpected death in a house is a great misfortune, for it pollutes everything in it. When the end of a man is approaching, his housemates remove the household furniture and the man's possessions. A method of disposing of the dead suggesting that employed by the Wotjobaluk of southeastern Australia is in vogue among the Hudson Bay Eskimos. If the deceased is young his feet are placed in the direction of the rising sun, while those of the aged are pointed in the opposite direction. The Iglilirmiut Eskimos bury half-grown children with the feet toward the south, middle-aged persons with the feet toward the west. Boas believes the same methods of disposal were in vogue at Cumberland Sound, inasmuch as not all graves lie east and west. One is reminded of the custom among Christian peoples of burying the dead with the head to the east, and of Shakespeare's lines in "Cymbeline":

Nay, Cadwal, we must lay his head to the east;
My father had a reason fo't—

a custom to which Beaumont and Fletcher refer in *The Faithful Shepherdess*. Among Alaskan Eskimos the number and kind of articles attached to the coffin or strewn around it depend upon the wealth of the deceased, as to whose social position these things are silent witnesses.

Among the Flathead Indians of Memaloose Island in the Columbia River a corpse is prepared for its last resting-place by a rude process of embalming. A species of berry is placed in eyes, nose, and mouth. As a protection from bugs and other insects pieces of snake-skin are tied around the head and to the trunk of the body. Blankets are then wound round the body, and silk handkerchiefs round the head, together with beads and wampum. The whole is securely sewed up in buckskin with leather thongs and carefully laid on the bare ground on a pile of dead bodies which has already been formed in one of the wooden inclosures. Old residents say that in former times the Indians did not scruple to deposit the living wife with the dead husband, the oldest wife if he had more than one. They deposit with the body the deceased's blankets, implements of war and of hunting, with whatever other personal effects can conveniently remain near the corpse.

Among the Wishrams, when a woman died with unborn child the people mourned for five days. During this time they ate only in the morning, fasting during the remainder of the day. The reason given was their sorrow at the loss of the child. "Now suppose a man is dead. Then he is to be taken to the burial vault and deposited among the dead. Now he is being carried and very many people go following him, as the dead person is being carried. He is liked, his heart was good to everybody. Ten days and five days they mourn. So also in the case of a woman. Good was her heart and, when looked at, good her appearance." "If a young man should die the people mourn. He is liked; he is given all kinds of good things. All over his body are tied on to him beads of sea-fish bones, sea-shell beads, round

glass beads, and strings of brass square-holed coins (probably Chinese); they are put around him on his body (neck and arms). And then they mourn for ten days. Again, so also it is done if a virgin woman dies. If a virgin dies, there are put all over her woven cloth, round glass beads, sea-shell beads, fish-bone beads, and bracelets. Her mother cuts off her hair down to her ears. Again, so also her father just cuts off his head-hair. Again, so also all her relations." [1] The Wascos also cut the hair when in mourning.

The Yanas wrapped up with the corpse various belongings —arrows, bows, and blankets. The brother of the dead man lay down in the grave and was then pulled out, being admonished, "Do not weep, you will soon follow him." The women danced and cried, pouring water on the ground to the east of the corpse. The dead man's mother remained near the grave throughout the night. Pitch was daubed on the face as a sign of mourning. The house and the unburied belongings of the deceased were burned and the family moved to another locality. Every summer food was burned at the grave. Beads of various kinds were brought to the grave of the deceased and pounded there. The Yanas sometimes buried a man in the sweat-house when it was snowing severely, reburying him outside as soon as a favorable opportunity presented itself.

After the process of burning the corpse of her husband the Tolkotin widow collects the larger bones, which she is obliged to carry for some years on her back. During this time she is treated as a slave.

The Clallams and Twanas begin the mourning as soon as a death occurs, the most arduous mourning duties falling to the women. Among the Twanas the mother of the deceased sings the mourning song, others occasionally joining, repeating the words: "My son (or daughter), why did you die?" Both parents cut the hair. About nine months after the death there is a potlatch at which each clan is represented by a delegation of two or three men who bring a present to the grave. Shortly after this the corpse is buried,

[1] Edward Sapir, Wishram Texts, In *Publications of the American Ethnological Society*. Vol. II.

the previous resting-place being on an elevated box. A woman prominent in the tribe is given special burial, the so-called canoe burial. Among the Indians of Oregon and Washington distinctions of rank and of wealth were marked, slaves and persons of no importance being buried with very little care or respect. Among the Chumash painted planks were erected at the graves of chiefs, the dead being burned, not buried, though burial was practiced in many other parts of California. Often the body of a Pima killed in battle was burned, though those who died in the village were not cremated. Russell supposes cremation a survival of the time when the Pimas lived on the Colorado, or else recently adopted from the Maricopas, who habitually cremate the dead. The Zuñis buried medicine-men and medicine-women, others being burned with their personal effects. Among the Hopis, the nearest relations wash the head of the corpse, tie a feather offering to the hair so that it will hang over the forehead, wrap the body in a good robe, and carry it to one of the graveyards in a valley near the mesas. There it is buried in a sitting position, with the face toward the east. Three nights later a bowl containing food, a prayer stick, and a feather and string offering are brought to the grave toward the west. On the following morning, the fourth after the interment, the soul rises from the grave, and, proceeding in the direction indicated by the string, enters the "skeleton house," somewhere near the Canyon of the Colorado. If, however, the deceased is a child who has not been initiated into one of the societies, the body is not placed in the ground, but finds resting-place in a crevice of rock on the side of a mesa, where it is covered with stones. The string offering points not toward the west, but toward the house of the family of the deceased. The spirit of the child will return to that house and be reborn in the person of the next child, or will linger about the house until the mother dies, and accompany her to the next world.

Winnebago chiefs were buried in mounds. In the Plains area the dead were usually placed on elevated platforms for a short period of time, later being interred. Maximilian is

probably wrong in saying that the Hidatsas buried the good on scaffolds, the bad in the ground, though he may be correct in averring that the Crows have a horror of being buried in the ground, though they have no fear of death. It was their practice to place the body on a scaffold, as was done by the Dakotas.

Among the Fox, near the close of the burial ceremony the body rests upon a support over the mouth of the grave; before it is lowered into the grave it receives a parting address, usually from an old man selected by the relations of the dead. Farewells are of two kinds, one simple and brief, the other long.

The Northern Saulteaux practiced three kinds of burial: tree, scaffold, and subterranean. The Crees usually buried the dead in shallow graves, but if the deceased had distinguished himself in war his body was placed on a scaffold. Medicine-men and medicine-women were buried; others, with their personal effects, were burned. Near the grave were placed little heaps of firewood, food, pieces of tobacco, and such things as the deceased was likely to need on his journey. "Similar offerings are made when they revisit the grave, and as kettles, and other articles of value, are sometimes offered, they are frequently carried off by passers-by, yet the relations are not displeased, provided sufficient respect has been shown to the dead, by putting some other article, although of inferior value, in the place of that which has been taken away." [1]

The Hurons and the Five Nations of the Iroquois left few articles in the grave, and but few provisions by it. At the present time, besides the food which the Iroquois set aside for the dead at wakes, for the use of the soul, a little is sometimes placed in the hand of the corpse. This is to be thrown to a savage cat and dog that guard the bridge over which the dead must pass on his journey to the realm of spirits. While the animals are devouring the food the spirit slips over in safety. "Every eight or ten years the Hurons convey all their corpses from all the villages to a designated place and cast them into an immense pit. They call it the Day of the Dead.

[1] Alanson Skinner, *op. cit.*

When this has been decreed by resolution of the elders, they drag out the corpses from their graves, some already decomposed, with flesh scarcely clinging to the bones, others thinly covered with putrid flesh, others teeming with vile worms and smelling fearfully. The loose bones they place in sacks, the bodies not yet disintegrated they place in coffins, and bear them, in the manner of suppliants, to the appointed place, proceeding amid deep silence and with regular step, uttering sighs and mournful cries. But, in order that the memory of chiefs and of those especially famous in the art of war, who lack offspring, may not fail, they choose some person in the flower of his age and strength to whom they give the name of the dead man. The namesake immediately makes a levy of warriors and starts for battle, in order that he may prove himself the heir not only of the name, but also of the valor of him whose place he has taken. Names of lesser note are condemned to everlasting silence. Therefore, as soon as anyone in the village has departed this life his name is proclaimed in a loud voice throughout all the lodges, in order that no one may rashly use it. But if, nevertheless, it be necessary to name the dead man, they use a circumlocution and preface something by which the unpleasant recollection of his death may be softened. If that be omitted they consider it a deadly insult; nor do they think that son or parent can be wounded by more savage abuse than when their dead relatives are defamed before them." [1]

SOUTH AMERICA

The Warraus of British Guiana place the deceased in a coffin made of one side of a canoe or corial, together with his bow and arrow, or gun, his cutlass, knife, and a lump of Carinami wax in his hammock by his side. There is no burying-ground, the grave being in the hut occupied by the deceased during his lifetime, so that the corpse may be sheltered from the wind and rain. They bury the kind of food which the deceased last ate, and destroy the crop in the ground, often leaving the family destitute. A *piwarrie* feast follows the funeral.

[1] Harry C. Yarrow, In I. *ABE*.

The ancient Peruvians practiced mummification of the bodies of kings and some people of note. On the occasion of certain festivals food was set before the mummies to nourish the souls of the departed. Failure to make this offering brought disease to those who neglected the duty. In some cases the body, and even the skull, was treated to insure preservation.

AFRICA

The Yorubas do not permit the burial of a man until his debts have been paid; one who has been executed may not be buried until the body has been ransomed. The time of mourning varies with the rank of the deceased. Many lives were offered at the funeral of a king, that His Majesty might have plenty of able attendants. "The disgrace of not having proper funeral ceremonies is such that often when a family has not the means necessary to defray the expense of a grand funeral the body of the deceased is wrapped in mats and preserved with aromatic plants in some secret place in the house; there is no mourning or wailing or weeping, but the family set to work to procure the required sum." [1] After a death the relations of the deceased must refrain from bathing.

If a man dies away from home and the body cannot be brought back his relations must bring back for sepulture clippings of his hair and nails. When the death of a child is attributed to an evil spirit which has taken up its residence within the victim, "the body is thrown on the dirt-heap to be devoured by wild beasts. Often the mother madly mutilates the corpse of the poor child, pounds it with stones, cuts off an arm or an ear, and threatens to beat the evil spirit, calling him wretch, thief, etc." [2] A slave is buried without ceremony —in strong contrast to the hecatomb of human victims offered at a king's funeral.

The inhabitants of Corisco Island, off the west coast, lay great men and also twins under a sacred tree. The Mpongwe keep the body as long as possible, the time varying according to the necessity of the case and the social position of the de-

[1] Alfred B. Ellis, *op. cit.*
[2] *Ibid.*

ceased. Usually the corpse is retained only a day, but in some tribes, for example at Loango, in the case of kings, the corpse, rolled in many pieces of matting, is retained for weeks. When a Mandingo person of consequence dies the relations and neighbors gather and manifest their sorrow by loud and dismal howlings. Over the grave is planted a certain species of shrub, no stranger being allowed to pluck a leaf or even to touch it.

On the Gold Coast, when a king or a person of great importance dies the body is kept about a year above ground, "upon a wooden Utensil like a Grid-Iron, which they put over a very gentle clear Fire, that by slow degrees dries it; Others interr their Dead privately in their own Houses." Among the Ewes, as among the Yorubas, when a person dies abroad the family try to obtain some portion of his person, such as pieces of his hair, or nail parings, over which the funeral ceremonies are performed. The ghost or soul lingers near the remains until the ceremonies are performed and cannot or will not depart until they have been celebrated.

In the Fjort, "when a child dies it is marked round the eyes and about the body with white and red chalk, and is buried perhaps the next day. The slave, or poor man, is also buried quickly without any particular ceremony. The rich man (or woman), when dead, is smoked dry over a fire, wrapped up in endless lengths of cloth according to his wealth, and after some months is buried in an imposing case very similar to that of a prince.

"A prince dies. Immediately it is known, all other princes either go themselves with, or else send, their people dressed in feathers, with drums and bugles, to cry. These visitors receive unlimited drink, and dance and sing until they are tired, and then they return to their towns." [1]

In the case of those accused of witchcraft the Fangs seek to disable the spirit by burning the body, for the spirits of the dead retain some connection with the body. Consequently, when slaves die, or others whom they have especial reason to fear, they sometimes beat the body with heavy clubs until they break every bone and reduce the corpse to a shapeless mass.

[1] R. E. Dennett, *Folklore of the Fjort.*

A Ba-Huana killed by lightning is buried in extended position, lying on the back. Women are buried in the same manner as men except that their cooking pots are buried with them. The dying man is attended by his relations. After death the corpse is arranged in a sitting position and is buried in a grave about five feet deep, the face toward the west. The clothes and weapons of the deceased, together with food and palm wine, are placed in the grave. If he was a maker of palm wine, the implements which he used in the process are buried with him. A small hut about thirty centimetres high is erected above the grave; in it are placed the fragments of his pots, which have been broken at the funeral. Here, too, often, his brother places an offering of food.

The Bangalas decorated the corpse of an important person with various pigments, largely according to the taste of the artist, who charged two brass rods per person to view the body, keeping the proceeds to pay for his trouble. They usually, though not always, buried the owner in his house, the other occupants then deserting it. When mourning they wore untrimmed skirts reaching only to the knees, giving the impression, as intended, of neglect due to grief.

For more than two months in dirty untidy apparel the usually tidy Bakongo king mourned his wife. Burial was the prevailing mode of disposing of the dead, but a murderer was burned and a suicide's body was thrown into the bush to be eaten by wild beasts, or, sometimes, was buried at the cross-roads.

As among most African tribes Chinyanja methods of burial reflect the social position of the deceased. If an infant dies before it has been "brought into the village"—that is, become socially a member of the community—it is buried in an open glade near the edge of a stream, the funeral being attended only by women. When a chief dies the men of his village make a foray into surrounding villages, seizing fowls, goats, or other possessions. The people of the outlying villages are first informed of the death of the chief, so that they may adopt the timely precaution of hiding valuable property before the visitors arrive. The Fans summarily dispose of common

men, while chiefs are buried with much ceremony. Kafirs bury headmen within the cattle inclosure, the graves of common people being outside, a practice found also among the Bechuanas. The Wa-Langulus bury a man on his right side, a woman on her left.

AUSTRALIA

Before burying the dead, the Tasmanians bent the legs back and bound them with twisted grass to the thighs. The arm was bent and the forearm bound to the upper arm. Before burial the corpse was partly burned on a pyre of logs and dry bark, the women assisting the men in kindling the fire. The attendants then left and did not approach the spot again during the day.

The aërial tombs found in many parts of Australia usually are erected for the bodies of old men, warriors being given a different kind of burial. The Aruntas do not bury in trees a young man who has violated tribal law by taking as wife a woman of the forbidden marriage classes. The custom of tree burial prior to finally placing the bones in the ground is one of the chief features which distinguish the burial customs of the Aruntas from those of their northern neighbors, the Unmatjeras and Kaitish. In Victoria, if the deceased has been noted for wisdom in counsel, and if his followers are numerous, two or three circles of mourners assemble about his resting-place during the obsequies. In New South Wales the body, previously to being buried or burned, is carried about in a canoe on men's shoulders, preceded by others who carry tufts of grass in the hands. The corpse is carried head foremost. When passing a hut which the deceased was accustomed to visit, a child is taken up in the arms of a man and turned toward the corpse as a mark of respect. The body is placed in a grave, strewn with grass and leaves. As the corpse is laid on the grass care is taken to place it so that the sun may look at it as he passes. The grave is then covered, boughs and grass are laid over it, and on these is placed a log. Women may not eat fish or meat during the remainder of the day. During the ceremony the name of the deceased

is not mentioned. The following night two natives sit by the grave as watchers. When the body is burned, it is placed in a grave laid with twigs and brushwood. Large logs to the height of about three feet are piled around it. Grass is spread over this pile, on which the body is placed, with head toward the north. Logs are placed over the body and fire is set to the pyre. Next day the ashes are raked together, covered with mold, and over this is placed bark. If a mother dies leaving a young child, and no one volunteers to nurse it, the father or nearest relation places it in the grave next the mother and dashes a large stone on it. The grave is then covered and both bodies are burned.

On the Namoi and the Barwon death is announced by a loud and melancholy wail. On the following day, or in some cases after two or three days, they bury the body in a hollow tree or in the ground. A chief, a venerated father or a loved friend is placed in a hollow tree. Men of less consequence and women are buried in the ground. Coffins of bark are used, some of these having a length of thirteen feet. When lowering the body into the grave the men utter a loud *"whir,"* imitative of the rushing sound made by the departing spirit in its ascent to the upper realms. When the body is buried in the ground, a hole is dug deep enough to place the corpse upright in standing posture leaving an open space above the head. This is covered with wood, care being taken that nothing touch the head of the corpse. The earth is carefully packed down over the wooden roof and over it a mound is raised. These mounds are well kept, presenting an appearance of order and care. Lamentations for the dead are sometimes continued for five months or longer. During this time the women are plastered with light mud, and frequently cut their heads with stone knives. After a burial fires are made about the grave, designed, some say, to drive away troublesome spirits from the living; others say, to benefit the dead —presumably to provide warmth for the soul of the deceased.

At Lake Albert the corpse was dried over a fire, sewed up in bark, then placed in a tree. In many parts of New South Wales the bones, skin, or other portions of the deceased are

carried about by a relation. Among the Narrinyeris the body of the deceased is adorned with stripes, placed in a sitting posture over a slow fire in a lean-to, and covered night and day with its own fat. The process generally occupies about six weeks, during which time the wailings are incessant. It is then wrapped and kept in the hut of the nearest of kin. In Central Australia a woman has no "spirit." She is "done for" as soon as she is dead; hence it is not necessary to take much trouble in the disposal of her body. Frequently women are not buried at all, or are buried without ceremony, merely for the sake of getting rid of the body. In some Australian tribes women are killed and eaten when they become old—though the flesh of young plump girls is preferred by connoisseurs. As a rule the mourning ceremonies enacted for males are not permitted in the case of women. At Rugby Creek, Kimberley, the corpses of men are wrapped in bark and laid on the ledges of caves, while those of women are flung under bushes. Kamilaroi men are buried in a suitable spot, representations of their totemic (?) animals being placed on neighboring trees, which contain also representations of their weapons; outside of this circle the women are buried, nothing being done to indicate the location of their resting-places.

In western Victoria a common man who wishes to show great affection for his deceased wife burns lines across his chest, using for this purpose red-hot bark. If the deceased wife of a headman was greatly beloved by her husband, he gathers her calcined bones, pounds them, and places them in a small bag of opossum-skin; this he wears suspended in front of his chest for twelve moons, then buries it. Until these relics of his wife have been disposed of by burial he may not remarry.

Ordinarily, however, a Victoria widower mourns only three moons for his wife. Every second night he wails and recounts her good qualities, lacerating his forehead with his nails until the blood flows down his cheeks; he also paints his face and head with white clay. He must wear the white clay and mourn for nine moons unless he succeeds in taking a human life in revenge for her death. If he ceases wearing the clay

before the expiration of three moons without taking a life, the relations of his deceased wife say he has "told a lie" and attempt to kill him (apparently implicitly accusing him of being the cause of the death of his wife).

In the Turribal, if the deceased be a man, his spear and club are left near him, so that his spirit will be able to hunt and fight in the next world. If the deceased be a woman a yam stick is left near her body in order that she may procure food in the world of the dead. Men are buried in prostrate position, on the back, women in cramped position. In no case may women be interred with men.

Along the Lower Murray the bodies of favorite children are placed in bags and elevated upon scaffolds, sometimes the bodies of two or three being inclosed in one wrapping. The bodies of aged women are dragged out by the legs and either pushed into a hole in the earth or placed in the forked branches of a tree, no care whatever being given to the remains.

The bodies of old men are placed on elevated platforms and remain there until the structure falls to pieces; the bones are then gathered and placed in the nearest soft earth.

When a young man dies, or a warrior is slain in battle, the corpse is set up on a platform with the legs crossed and the face turned toward sunrise; the arms are extended by means of sticks, the head is fastened back and the apertures of the body are sewn; the hair is plucked off; the fat of the corpse, which had previously been removed, is mixed with red ocher and rubbed over the entire body. Fires are kindled beneath the platform, around which the friends and mourners sit in silence. Natives use emu feathers or small branches to keep the flies off the body. After the body has been on the platform several weeks it is taken down and buried. If the deceased was a warrior slain while fighting, in addition to the above honors his limbs are painted with stripes of red, white and yellow.

The Encounter Bay natives have several methods of disposing of the dead, depending upon the age and sex of the deceased. Children who were still-born or were put to death

immediately after birth are burned. The child who died a natural death is carefully wrapped, the mother or grandmother carrying it about with her for several months or a year, after which time it is exposed upon a tree until the bones are clean, then is buried. Young and middle-aged persons are given another kind of burial, and treated with more respect than are the aged; the latter are placed upon a platform, where the body remains until the flesh has decayed, then is burned. The very old are shown no consideration and are buried immediately after death. Thus the thesis of W. H. R. Rivers, that the different methods of burial found in a given tribe in Australia signify contacts with various cultures, cannot be accepted, seeing that the methods are a reflection of the comparative importance assigned the deceased in social life.

In their complexity and completeness, the care with which they are enacted, the time they occupy, the funeral observances, with few exceptions, are in keeping with the social position accorded the deceased. The social personality triumphs over death. The survivors pay the deceased the same comparative respect which they accorded him while alive. The funeral ceremonies are thus a gauge of the personality attained by the deceased and demonstrate the hierarchy of social personalities.

Piers Ploughman was mistaken when he declared that, "in the charnel house at the church it is hard to know a knight from a knave." At least this dictum would ill apply to aboriginal Australia. The Australian may echo the sentiment: "My personality, my self, all that is characteristic of and essential to me as a person, survives the period of unconsciousness."

SIGNIFICANCE OF FUNERAL RITES

Hertz gives an illuminating account of primitive funeral rites. His thesis is as follows:[1]

For science death is simply the cessation of life, a mere physiological phenomenon. For primitive man death is not, as with us, absolute when the breath leaves the body. The

[1] *L'Année Sociologique*, x, 1905-06.

funeral rites bear witness to the existence of a concept of death essentially different from our own. The period intervening between death and the final rites may be treated under three heads, according as they have to do with the body of the deceased, his soul, or the survivors. Frequently the body is given a burial which is made final only upon dissolution. The tabu upon relations lasts until the required degree of dissolution is accomplished. There are examples of this in Borneo. Frequently there is the belief that the soul after leaving the body sojourns on earth before going to the permanent resting-place. The Oli Ndadjus of Borneo believe that there are two souls, one of which is the essential element in the personality, the other a sort of physical soul resident in the spirit animating the eyes, the hair, the ears, etc. It is necessary to hold a grand festival that this physical soul may be rejoined to the psychical in the world of the dead. The relations of the deceased are under tabu for a certain period following the decease. During this period they are required not only to carry out certain mourning observances, but also to remain apart from others and not touch the things used by others. They are treated as if under a dangerous contagion. The period of mourning varies with the degree of relationship. Among the Oli Ndadjus, for example, distant relations are "impure" for only a few days immediately after death; those of the closest kinship are most affected by the contagion and are longest under the tabu. In this tribe the funeral rites can be terminated only by the sacrifice of a human being, who is decapitated; only after certain rites are performed are the relations free of all impurity or tabu. The belief that the funeral rites must not be held immediately after death, but only at the expiration of a considerable period, is widespread. Cremation, when practiced, usually is a final rite. In Indonesia cremation corresponds to the first rite in other places, the burial of the bones that remain after cremation being the second and final rite. The disintegration of the body may be attributed to the departure of the soul to the next world, or, as in Melanesia, it may be only after odor from the corpse has ceased that the disembodied spirit acquires a force and

vitality of its own, becoming then a spiritual protector about which, sometimes, a cult of the living grows up. The final ceremony has a threefold object: to give the deceased a definite burial place, to secure for his soul repose and entrance into the world of the dead, and to raise the tabu from the mourners.

During mourning the Dyaks shave the hair from the head, tear off either their sarong or their jacket, and run about with the upper or the lower part of the body naked. This lasts until heads are taken. The body is placed in a coffin and brought to the house where the dead man is to rest. Those who carry the body, and those who carry the clothes of the deceased, which are to be deposited with the body, must take care not to stumble or fall. One who stumbles or falls at such a time will not live long. The funeral feast which is held after the body is placed at rest lasts a month.

Knowlson points out that vampire legends seem to have their origin among peoples who bury the dead in the earth, "for it is singular that the races which cremate their dead have been practically free from vampire legends. Earth burial has never been free from the possibility of premature burial, and although there is no reason to believe that a man buried alive will not die in his coffin of suffocation, an ignorant peasantry seemed to imagine that he could live, issue forth at night, and keep himself alive by sucking the blood of the living." [1] In Africa, where earth burial is practiced, the vampire superstition is especially strong.

The horror of death is practically universal. Most tribes have an explanation of the origin of death, for they consider it not natural. Death is explained as due to the escape of the soul, to the act of a supernatural being, or to evil magic. Under certain circumstances there is abandonment of the dying, burial before death is complete, and sometimes removal from house or bed of those about to die, presumably to prevent contamination of house or furniture. Death is essentially a separation of soul and body, a separation which has in it elements of danger for the survivors.

[1] Knowlson, *Origin of Superstitions.*

Prior to the funeral there is, frequently, opening of doors and windows, observances in the house designed to rid it of the presence of the soul or to appease the soul of the deceased, telling the bees or other animals of the death, wailing and dirges, careful toilet of the corpse and sometimes mummification, feeding the dead, the wake, tabus imposed upon the survivors. The most common objectives of the funeral rites are to free the living from contamination, to give rest to the deceased, to make provision for the life after death. In some cases the customary rites are not carried out. They may be denied infants and the uninitiated, those under puberty, slaves and common people, those who die a "bad" death, such as suicide, those who are held in especial repugnance, women dying in childbirth, and debtors. The methods of disposal include cannibalism, sub-aërial deposit, cave burial, water burial, inhumation, preservation in the house, cremation. Cremation may have had its origin in convenience, or in a desire to drive away the ghost, or in the attempt to insure protection against its return.

The furniture of the tomb, the position of the corpse, the coffin, often are matters of great importance. The time and manner of holding the funeral differ widely. They include touching the head, circumambulation, carrying out the corpse, precautions against the return of the ghost, simulating the reluctance of the corpse to leave its old home, making farewell speeches. To prevent the return of the ghost the body sometimes is taken far from the house.

Often food and drink are provided at the grave, and wives and dependents may be buried with a man. With him, too, are buried or burned his property, domestic animals, or goods of various sort. Precautions against haunting may include burying the soul, and binding or mutilating the body.

The soul may linger about the house and, when the survivors return from the funeral, it may be necessary to purify them. Funeral feasts may be held before the funeral, or after it, their object being to satisfy the soul of the deceased or give it god-speed on its journey. These are the prominent motives

in funeral games and dances. Mourning regulations involve tabu, the wearing of a certain garb, and wailings.

Purification of the house and village in which the deceased lived and destruction or abandonment of house and property is not uncommon. Almost world-wide is the tabu on pronouncing the name of the deceased.

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CHAPTER XXXV

LANGUAGE

"By this sequence of different sounds he was enabled to fix and communicate his ideas."—ANATOLE FRANCE.

"He gave man speech, and speech created thought,
Which is the measure of the universe."—SHELLEY.

IT is sometimes easy to distinguish between the purely useful and the purely artistic. But in many cases the useful is also artistic, and the artistic may also be useful.

The savage is inclined to make his useful articles artistic, and to find a use for his *objets d'art*. This applies not only to material objects, but as well to one of the most useful of human intellectual tools, language. Language is developed and used for its own sake as well as for the ends which it serves. It runs into hyperbole and metaphor, poetry and rhythm, musical cadence, tones and emphases.

Mythology and folk-tale serve the purpose of providing amusement or entertainment even more than that of furnishing information. The tale is told for its own sake and with attention to literary form; in this enterprise artistic talents find wide play. Song, poetry, literature, as well as sculpture, modeling and the decorative arts, are traits of savage culture.

ANTIQUITY OF LANGUAGE

The development of the speech centers in the brain, as indicated in prehistoric skulls, that of Java man, among others, has led some anthropologists to conclude that prehistoric man was a user of language. But that the fossæ of the frontal region indicate speech we must doubt. The anatomist cannot tell by examination of the brain of contemporary man, much less by examination of cranial bones, whether the individual was a speechless idiot or an eloquent statesman. How much

less, then, can he tell from an examination of the cranial bones of prehistoric man whether or not the owner was facile of speech?[1]

Neither will the presence or absence of genial tubercles or of a prominent mentone (chin) region enable one to say whether or not the possessor used speech, though nothing in the conformation of skull or mandible indicates that man was incapable of speech in the earliest times known to us.

But apart from anatomical characteristics there is reason to suppose that Paleolithic man of the Magdalenian period —and in all probability man also of far earlier periods—was in possession of language. The numerous well-executed paintings, the designs incised in ivory and in bone, indicate an esthetic and intellectual appreciation which implies the existence of language. Paleolithic man may have executed works of art merely for the pleasure afforded hand and eye; but it is probable that they told a story to him and to his comrades, and communicated ideas to his fellows. If that be so, Paleolithic man was in possession of language, even though words were not spoken.

A historical study of language leads us to the conclusion that this aspect of human culture is of great age. In the old civilizations, Chinese, Egyptian, Babylonian, Hebrew, Iranian, language was highly developed. In view of the slowness with which language, as compared with most features of culture, develops, the conclusion that these respective languages had been in existence for many millennia prior to the earliest record of them, is almost irresistible. The universality of language is a further indication of its antiquity. We find language wherever we find culture. Tribes of most primitive culture, of greatest isolation, possess a highly developed language which must have a considerable background of historical development. And there is considerable linguistic differentiation.

To suppose separate origins of languages is difficult, though there is nothing logically inconceivable in the supposition that groups of men have independently embarked on a career of

[1] See p. 57.

language. But if all languages have come from a common ancestor, as is probable, then the time required for the linguistic differentiation which has been achieved must be very great. Many languages, such as English, Eskimo, Chinese, have nothing in common, or so little that we can find no traces of a common linguistic ancestor. Even if we grant more than one source of origin we cannot grant as many origins as there are separate and distinct speech families. In either event the evidence indicates great antiquity.

Immanuel Kant pointed out that for dearth of proper words it is sometimes difficult for a man to make himself completely understood, a matter which the Pragmatists have emphasized. It has been generally assumed by the lay world that savages have great dearth of words with which to express their thought, being in this respect much less adequately equipped than is the European. This assumption is of doubtful validity, for the vocabulary of savages is generally rich enough to express meanings in which they are interested, and their language is perhaps as adequate a vehicle for their thought as our language is for ours.

PRIMITIVE EXPLANATIONS OF LANGUAGE

Many peoples invent an explanation for the linguistic differences which they observe among various tribes. The reason why the Hano of the Pueblo region can talk Hopi and the Hopi cannot talk Hano is explained in the following manner: "When the Hano first came, the Walpi said to them, 'Let us spit in your mouths, and you will learn our tongue,' and to this the Hano consented. When the Hano came up and built on the mesa they said to the Walpi, 'Let us spit in your mouths and you will learn our tongue,' but the Walpi would not listen to this, saying it would make them vomit." A not uncommon element in the cosmogonic myths of savages is an explanation of linguistic differences. Generally speaking, one tribe knows only its own language, perhaps having slight acquaintance with some closely related tongue spoken by an adjoining tribe.

Linguistic similarities sometimes are observed and fre-

quently give rise to tradition or to explanatory myth. The Ute name for *seed* means also *eye;* according to tradition seeds came from the burst eyes of Tavwots. The following doubtless is an instance of similarity of words producing story and explanation: "Some Japanese declare the word 'Ainu' to have originated in their word for dog, 'Ino,' but there appears to be little authority for this. They also state that 'Yezo,' the name of the island, is taken from the Ainu custom of bending the body when going before a Japanese officer, especially the Ainu interpreters, who lead by the hand the men for whom they are about to interpret, both having their bodies bent and advancing a step at a time, dragging one leg after the other. Their attitude so much resembled the shape of a shrimp's body, that they were called 'Yebi' ('shrimp'), and 'so' ('savage'), and 'Yebiso' has since been changed to 'Yezo.'" As a matter of fact these names existed prior to the customs which are supposed to have given rise to them. By a similar process of myth-making based on similarity of words the story of the mutilated breasts of the Amazons is probably due to a false etymology—*a* ('without'), and *madzos* ('breast'). European languages as well as those of cruder folk have given rise to a host of myths purporting to explain the origin of various names.

DISTINCTIONS NOT OBSERVED BY US

As Rivers points out relative to the Todas, "When a word for a concept is absent in any language it by no means follows that the concept has not been developed." [1] Though usually a concept corresponding to a word in use has been developed, the word may persist long after the original concept has faded away or has acquired a new meaning. The angle from which primitive peoples view life is in many ways different from that from which we view it, and it is not surprising that the difference is sometimes recorded and reflected in language. The Chinyanjas have a word, *meso,* which means the fat under the abdominal skin of an animal; *kuguba,* meaning to make the shield resound by knocking it against the knee and leg;

[1] Wm. H. R. Rivers, *The Todas.*

irikusupa, to march in close order with shield held over the head. The Iroquois distinguish between nouns designating men and other nouns, the latter being further divided into definite and indefinite. Mohegan has no second person plural. Sioux has no distinction between singular and plural of the second person, though the first person singular and the first person plural are sharply distinguished. "In some Siouan dialects we may well say that the pronominal object has a first person singular, first person plural, and a second person, and that no other pronoun for the object occurs." When a Ponca wishes to state that a man killed a rabbit, he indicates that the man, one, animate, standing, purposely killed, by shooting an arrow, the rabbit, one, animate, sitting. When a Kwakiutl refers to a house he must distinguish whether it is visible near me, invisible near me, visible near thee, visible near him, invisible near him. The idea of "to be seated" almost always is expressed with an inseparable suffix expressing the place in which a person is seated; as, *"seated on the floor of the house, on the ground, on the beach, on a pile of things,* or *on a round thing,* etc. When, however, for some reason, the idea of the state of sitting is to be emphasized, a form may be used which expresses simply *being in a sitting posture.* In this case, also, the device for generalized expression is present, but the opportunity for its application arises seldom, or perhaps never." [1]

With regard to any language, "The fact that generalized forms of expression are not used does not prove inability to form them, but it merely proves that the mode of life of the people is such that they are not required; that they would, however, develop just as soon as needed." [2]

In Eskimo the locative is so specialized that the user of it must specify by the word or the form of the word which he uses, whether it is near me, near thee, near him, behind me, to the right of me, to the left of me, above me, below me, and so on. Thus *adliru* is a small lamp on the floor of the hut, *qudliru* a lamp above, *kidluliru* a lamp standing in the rear of the hut. Not infrequently the savage ignores dis-

[1] Franz Boas, *Handbook of American Indian Languages.*
[2] *Ibid.*

tinctions observed by us or cross-sections our distinctions. This frequently happens in color designations. The Ashantis have distinct names for the colors black, red, and white. The term black is used also for any dark color, such as blue, purple, brown, etc., while the term for red does duty for pink, orange, and yellow. "Gray" is expressed by the word for wood ashes, and "green" by "tree," or by "leaf"—compare our "orange," "indigo," "cream." To the Thongas *ntima* means both black and dark blue, *libungu* is carmine, red, purple, and yellow, the last, according to Junod, not being perceived as a distinct color. *Psuka* is the tinge of dawn and of the rising sun. *Nkushe,* meaning "seaweed," describes sky blue. *Nkwalala* is gray; *lihlaza* is green, the green of the grass in the spring. In Djonga the corresponding term is *rilambyana,* "that which makes dogs howl," Junod declaring that "very green grass has this effect on native dogs." (!)

PRAGMATIC DISTINCTIONS

Many of the distinctions made by savages seem irreducible to any rational explanation, but merely exemplify the vagaries of linguistic classification. But many distinctions which at first impress us as mere vagaries appear upon closer examination into the purposes which they serve to be justified by the needs of the people who employ them. Such pragmatic distinctions are common. The tribes of New South Wales have eight kinds of spears, exclusive of fish-gigs, differing in the number of barbed points; for each of these types they have separate names, as for each of them they have special uses. The Tartharol clan of the Todas have several names for the various sacred buffaloes corresponding to their respective religious significance. Paths into the village restricted to women and girls have one name, those restricted to men have another, while still another designation applies to those reserved for the dairymen.

In British Central Africa there are various names for the many species of caterpillars and beetles. It is important to distinguish between them, since some are food for the native and others destroy his food. As a rule, less attention is paid

animals not utilized for food, and the vocabulary applying to them is correspondingly small. The Eskimos include under one name several species of land birds which they do not use for food, calling them indiscriminately *suksaxia*. In the same language the seal in different conditions is connoted by a variety of terms: One word is the general term for seal, another signifies seal basking in the sun, a third, seal floating on a piece of ice, while there are many names for seal of different ages and for male and female. The Eskimo's fate depends upon seal, and these distinctions serve a purpose.

Ojibway has two names for skins of animals, according to whether they are with or without hair, distinctions with a utilitarian justification. In Eskimo-land snow and wind are two of the most insistent and important environmental factors in the life of the inhabitants. *Aput* means snow on the ground; *qana,* falling snow; *piqsirpoq,* drifting snow; and *qininqsuq,* a snowdrift. The names for the winds are almost as various as the breezes themselves. Separate words refer to snow-wind, wind blowing down a valley, wind on the open sea, wind on the land side, wind coming along the shore, and there are separate words for winds from the respective eight points of the compass. If the weather is thick the Eskimos steer by the wind, and after a gale they feel their way by observing the direction of the snowdrifts. At Cumberland Sound the people use a word, *piningnang,* to signify true south, but other points of the compass are designated according to the kind of weather prevailing while the wind blows from a certain quarter.

The early Scandinavian adventurers who spent a large part of their roving life on the sea, and their Anglo-Saxon successors, developed a rich vocabulary in terms expressive of the condition of the waters, connoting, respectively, a smooth sea, a slightly ruffled sea, one of long rolling waves, a choppy sea, and so on. Their successors, the sailors of the present day, have done much to keep alive various comparable distinctions —the pride of the poet and the despair of the prosaic landsman.

Very commonly the languages of savages contain kinship

distinctions not observed by us. The savage may have one term for all women who belong to a class into which he is permitted to marry, and another for those of a class into which he may not marry. Frequently he finds it an advantage to distinguish in his terminology between those related to him through his mother and those related through his father. The early Greeks, Latins, and Germans observed many distinctions in kinship terms which they subsequently lost when a change in social and political life made the old distinctions superfluous.

ABSTRACT TERMS

The Wishrams point out a long high mountain called "Story," in which long ago Coyote attempted to lock up the "story." Its clefts are due to the sudden force with which the "story" broke out. Here the abstract is made concrete. Frequently abstract terms are derived from concrete ones. The Ga word *kai* ("to remember") comes from *ka* ("to adhere to"); Tshi *kai* ("to remember") comes from *ka* ("to touch"); Yoruba *susui* ("thought") comes from *su* ("to resemble," "to compare"). Similarly, German *Begriff* ("conception") signifies a "grasping"; English "conception," a "grasping together"; "perception" and "apperception" have similar physical connotations. And so throughout the list of abstract terms which the philosopher in western European civilization uses. Toda houses which have a door at each end and a central partition forming a double hut, are called *epotirikhthars* ("both-ways-turned-houses"); those which are partitioned off and have the door on one side are called "the-other-side-houses," due to the fact that the door is on the other side as compared with the ordinary and presumably more ancient form of double hut. The Yorubas call a parrot "a whistler," and a grave the "place of a ghost." Maize is "that which is beaten" (or cleansed) in a mortar. *Eta* ("pepper") is derived from *ta* ("to sting"); *aka* ("storehouse"), from *ka* ("to count"); *eda* ("snake"), from *da* ("to creep") —compare our English "creeper," referring to a climbing vine; *okoto* ("wild animal") is "forest" (or bush) animal; "shoulder" is "above the arm"; "eyeball" is the "egg of the

eye"; *nyi* ("child") is derived from a root meaning primarily "to feed"; in Ewe the word for mother is cognate with *da* ("to cook"), and the word for father signifies "maintainer."

In Chinyanja, *kuyesa* ("to measure") means also "to call," "to name," "to suppose a thing to be," "to think," "to try," "to attempt." "To suffer bereavement" is expressed by *kufa* ("to be killed").

Bücher finds in German evidence of an earlier readiness for migrations, a universal mobility which has left distinct traces in the language. "The word for 'healthy' (*gesund*) meant originally 'ready for the road' (from *senden* meaning 'to go,' 'to travel'). *Gesinde,* signifying to-day household servants, is, in the olden speech, a traveling retinue; companion (*Gefährte* and *Gefährtin*) means, in the strictly literal sense, the fellow-traveler. *Erfahrung* (experience) is what one has obtained on the journey (*Fahren*); and *bewandert* (skilled) is applied to the person who has wandered much. With these the list of such expressions is far from exhausted. In the general significance attached to them to-day the universality of the concrete range of conceptions and observations from which they originally sprang finds expression." [1]

NUMERICAL SYSTEMS

Many languages reflect the method of counting which gave rise to the numerical system. In Tshi "one" is *ko* or *kro,* etymologically cognate with *kokrobeti,* meaning "thumb." In Ewe, *de,* the alternative word for "one," is from the verb *de* ("to go"). In Tshi, Ga, and Yoruba, "two" is named after the index finger, "the pointer," or in Tshi "the show-show-road." In the above-mentioned languages and in Ewe "three" is named after the third finger, which is designated as *long, thick, strong, middle,* or "shoot out lengthwise." "Six" is indicated by the word "change" (Tshi), "move" (Ga), "to go" (Ewe), or "to lead" (Yoruba). Nine is called "one remaining" (Tshi), or "one left on the hand" (Ewe). Ellis gives this fuller account of the first ten numerals of the Yoruba:

[1] Karl Bücher, *Evolution of Industry.*

"*Okan* ('one') means 'something alone,' and no doubt refers to the thumb (which is *atampako*). *Eji* ('two') is probably from *ji* ('to pick') and means 'the picker,' that is, the index finger. This word appears again in *eje* ('seven'), which would be counted on the index finger of the other hand. *Eta* ('three') is from the verb *ta* ('to shoot out lengthwise')—the third or middle finger being the longest. *Erin* ('four') seemingly is from the verb *rin* ('to go,' 'progress') and would mean 'the progressing.' *Arun* ('five') is from *run,* 'to bring to an end,' 'finish.' It means 'the ending'—'five' brings to an end the counting of the fingers of one hand. *Efa* ('six'), which would be counted on the thumb of the other hand, seems to mean 'that which leads or attracts,' and to be from *fa* ('to lead,' 'attract,' 'draw'); and *ewa* ('ten') is probably from the verb *wa* ('to come together') and refers to the closing of the two hands when the counting is finished."[1] In Tshi, ten (*edu*), is from *du* ("to reach," "to arrive"); in Ga, from *nyouma* ("both completed").

Brunet and Giethlen say that for numbers greater than the number of the fingers of one hand, the Dahoman adds those of the other hand; but they are mistaken in declaring that "all his science stops there." After using the decimal system for the first fourteen numbers the Dahoman resorts to a vigesimal system. Fifteen to nineteen are found by deducting from twenty—as, "five less than twenty," "four less than twenty," and so on. Numbers from forty to two hundred which contain a complete number of twenties are formed by placing *ogun* ("twenty") before the units. Forty is *oji* "(twenties two"), etc. The tens from forty to two hundred which will not divide by twenty are formed by deducting ten from the decimal value next above, as "ten less than sixty." After two hundred the reckoning is by two hundreds. Ordinarily, however, the numbers from two hundred upward are expressed in cowrie nomenclature. Cowrie shells are pierced and strung to the number of forty or fifty, five of the former number or four of the latter comprising the two hundred cowries in the form of a small bundle called *igbawo;* ten small bundles, or

[1] Alfred B. Ellis, *op. cit.*

two thousand cowries, making a large bundle called *egbawa;* ten large bundles, or twenty thousand cowries, making a *bag.* Quantities above this amount are computed by "bags."

In Fox the cardinals begin with the consonant *n,* a symbol intimately associated with the hand. The symbol throws a light upon the probable origin of the numeral system. It is connected, no doubt, with the habit of counting with the fingers. Here, as with the Yorubas, commercial activity has influenced the manner of keeping count. The word for "fourth" is an adverbial form of "racoon," the term being derived from the word meaning a quarter of a dollar, which was the price paid for a racoon-skin at the trading-store. This became the denominator, while the cardinal served as the numerator. One of the words used to express one thousand means, literally, "one box." "The term is of recent origin. In some of their earlier sales of land to the government, the people received payment partly in cash. This money was brought in boxes, each box containing one thousand dollars. From that circumstance the term for *One Box* passed in numeration as an expression for *A Thousand.* The term is now a fixture, even though its form is less simple than the more logical word." "Ten boxes" means 10,000, literally, "one box taken ten times."

Boas says, regarding the relation between counting, names of cardinals, and the ability of primitive peoples to employ the higher numerations:

"It must be borne in mind that counting does not become necessary until objects are considered in such generalized form that their individualities are entirely lost sight of. For this reason it is possible that even a person who has a flock of domesticated animals may know them by name and by their characteristics without ever desiring to count them. Members of a war expedition may be known by name and may not be counted. In short, there is no proof that the lack of the use of numerals is in any way connected with the inability to form the concepts of higher numbers." [1]

[1] Franz Boas, *op. cit.*

ESOTERIC LANGUAGE

A language known only to the initiated is not rare in savagery. In their deliberations and ceremonies the Cacap-Incas of Peru used a private language not known to subjects and tributaries. The Chinyanja secret society had a cryptic language. Numerous *kwarzam,* or secret names, are used by the Todas in the buffalo rituals. The *kwarzam* of the Keradr buffaloes refer to the traditions regarding their creation. Another sacred language in use at the *ti* dairies refers to dairy vessels or other objects used in the dairy ceremonial, such objects having names different from those used in the house or in the village dairy. Certain verbs used in the *ti* dairy may be pronounced by ordinary people only in the third person. A third form of sacred language seems to be used in traditions having to do with the "gods." These suggest the obsolete words and formulas used in the religious rites of many peoples. At harvest time the ant, which is very destructive in Nias, is propitiated by being called *Sibaia,* the name of a good spirit which protects the crop from harm. This is a magico-religious element of wide distribution: the philosophy that there is much in a name.

GESTURE LANGUAGE

The most highly developed gesture language is probably that found in the Plains area of North America, where tribes speaking mutually unintelligible languages are able to communicate by means of it. It is here utilized over a large area. It is employed extensively also in Australia, though, it would seem, in not such highly elaborated form. With regard to its use in Australia Howitt says: "The use of gesture language varies much in different tribes. Some have a very extensive mode of signs, which admit of being so used as to amount to almost a medium of general communication. Other tribes have no more than those gestures which may be considered as the general property of mankind.

"The occurrence or absence of gestures as an aid or substitute for speech does not, as far as I can ascertain, depend on

social status, or the locality in which a tribe lives. Yet, so far as I can venture to form an opinion from my own observations, and from the statements made to me by my correspondents, the use of sign language is more common in Central and Northeast Australia than in the southeastern part of the continent.

"The reason for this may perhaps be found in the vast extents of open country, plains, sandhills, and stony tracts

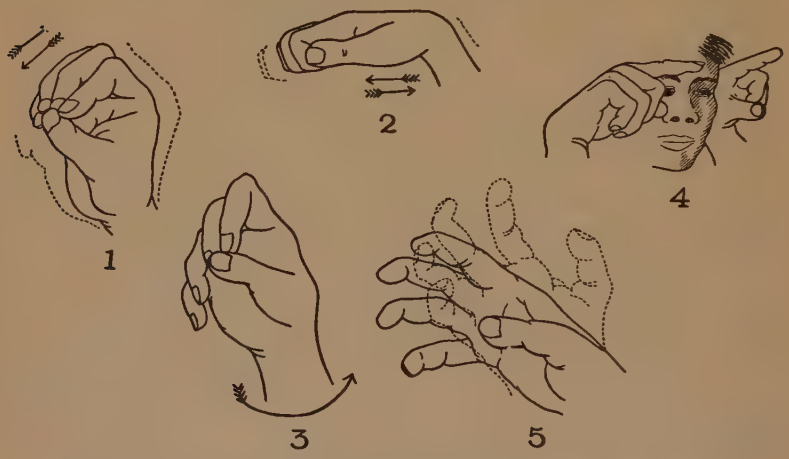

FIG. XXV.—SIGN LANGUAGE USED BY NATIVES IN QUEENSLAND, AUSTRALIA.

1 indicates a dingo, the native dog, the hand being moved to and fro in the manner indicated by the arrows and the dotted line. 2 is a horse, the forward and backward movement from the elbow indicating the flat hoofs coming to the ground in rhythmic succession. 3 is also a horse, the inward rotation at the wrist perhaps imitating the pawing of a horse. 4 is cattle, the extended forefingers held close to the head, suggesting the horns of a cow. 5 is a black crow, the fingers being held apart claw-like and the hand rotated at the wrist.

which occur in the interior of Australia, as, for instance, in the Lake Eyre basin.

"A stranger is seen there from afar off, and can be interrogated at a safe distance by gesture language as to who he is, where he comes from, and his intentions. When I first saw some of the Cooper's Creek blacks, I was struck by their use of gestures, at a safe distance, which I took to be either a defiance or a command to depart. Afterward, when I became better acquainted with them, I came to see that these gestures were part of a complete system of hand signs, by

which a person might be interrogated, informed, welcomed, or warned." [1]

It is significant that the most ample use of gesture language in both the Old World and the New is in those open spaces where its employment may be of greatest advantage to friends or strangers.

ETIQUETTE

Language has many distinctions of etiquette. Among the Yanas it is not proper for brother and sister to address each other in the singular. Among the Yorubas, according to court etiquette, no word having more than one distinct meaning—such words are numerous in Yoruba—may be used when addressing the *Alafin,* if one of its meanings, no matter how inapplicable to the subject in hand, be unbecoming.

SOCIAL ORIENTATION

The Jew-Gentile, Greek-Barbarian distinction is not uncommon. In Chinyanja anyone not an Angoni is called *Afo.* Yuchi "gender" distinguishes between members of the tribe and other human beings.

In many cases the name which a people applies to itself means "people," or "human beings." The Eskimo word for themselves has this meaning, though under this name they include, by courtesy, white men as well as Indians. Those who live in a given locality are often called by themselves, as well as by other groups of the same tribe, "those who live on the river," or "those who live by the sea," or by some other designation of locality.

WRITING

To discuss writing among primitive peoples is to contribute a "Snakes in Iceland" account. There is no writing among savages. Indeed, savagery, at least as used in this work, is nearly synonymous with peoples who have no written literature. Yet it would not be strictly accurate to say that none of them write. A picture-writing is employed in many areas,

[1] Howitt, *The Natives of South-east Australia.*

notably in many parts of the New World. Moreover, many peoples make use of mnemonic devices, scratches on wood, or designs or figures, to refresh the memory, and many keep records of numbers by a system of marks or representations.[1] The jungle Sinhalese of Ceylon used two types of message sticks. One was a piece of creeper, with one, two, or three knots in it, sent wrapped in a piece of cloth, as a call to the recipient to come to the sender. The urgency of the latter's need was indicated by the number of knots. "A lock of hair, usually cut from the head of the dead man and twisted round a small stick and wrapped in a leaf or fragment of cloth, was sent as a sign that a death had occurred." [2] Other message sticks, containing conventional signs scratched on leaves or on flat slips of wood, were sent to the Veddas to inform them that they were to bring venison and honey.

Fig. XXVI.
Australian (North Queensland) Message Sticks.

Sticks of this sort, accompanied by verbal messages, pass from tribe to tribe and are, at the same time, the messenger's letter of credentials, to whom ambassadorial courtesies are extended. The notches are merely aids to memory. Only the messenger can read the message.

Only in civilizations which have emerged or are emerging from a Stone-age culture is there an approach to an adequate system of writing, such as was used by the Mayas, the Aztecs, and the early peoples of the Mediterranean area.

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[1] See p. 169.

[2] C. G. Seligmann, *The Veddas.*

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CHAPTER XXXVI

MYTHOLOGY

THE savage is not the best example of the matter-of-fact person. Indeed, he is seldom that. He lives not merely in the world of crass reality, but also in a world of unreality, in a world of fancies and ideas which at times please him as much as does the real world in which he lives.

The savage is a "poet"—that is, he "makes." Not content with the world about him, he makes another world—not a counter-world nor a supplementary world, but a different world. With this "other world" his myths deal; about it he narrates stories and adventures.

The tales are of various sorts. Some are merely personal adventure, with, one suspects, a bit of imagination thrown in and a good deal of frank exaggeration. Such are the war adventures, which the Indians of the Plains area narrate, and the adventures in hunting, with which many a hunter regales guest or host.

Others are anecdotes or short stories with a plot, told for the interest in the tale, or for its humor. For all savages have a sense of humor, and all are given to story-telling; laughers and narrators are more numerous than fighters.

Another group of tales is concerned with the remote past. Such stories tell of the adventures of an ancestor, real or supposititious, of an animal prototype, of a culture hero. Always, too, there are nature myths, stories about the beginning of things, the creation or formation of the world, of animals, men, plants, mountains, rivers, lakes. The creation legend is a widely spread form of myth. No tribe is without an explanation of how things began. In many cases the *motif* is widely distributed. Thus in North America, throughout the central Woodland area, the belief prevailed that first there was water, then land. Land was formed by an animal,

in some tribes by muskrat, in others by otter. Out of the bit of earth which the animals obtained by diving all the land was made.

Among other Indian tribes natural features are given a similar explanation: the mountains were formed by coyote, or by a huge being then existent; the canyons were dug out by the antlers of a deer; trees were started; vegetation sprang up.

In most culture areas the creation of man is described. Coyote fashions a man and a woman; or the people come out from the underworld; or originally there are half-animal, half-human creatures, which the culture hero causes to become men and the respective animals—as in Australia.

Then there are accounts of how man came to be as he is. Originally he had ten fingers on each hand, which were later reduced to five. Other changes in his structure are noted. Death was not part of the original scheme. Neither was sin present in the aboriginal garden of Eden. Both death and sin came later, sometimes owing to man's shortcoming, sometimes independently of human error.

The stellar bodies are not forgotten. The native relates the creation of sun, moon, heavens, stars, constellations.

Amid the underlying *motifs* one distinguishes the following classes of myths or stories: etiological, told to explain the origin or existence of some thing or institution; semi-historical, consonant with historical happenings and probably partly, or entirely, historical; the anecdotal, to furnish entertainment; and the humorous, told for the fun which they furnish. Such a classification, however, is largely formal and is by no means mutually exclusive. Many narratives partake of all these elements and many contain as much of the one as of the other.

For this reason it is exceedingly difficult to know what value to place upon myths as reflecting the concepts, philosophy, or ethics of a people. Some students of mythology believe they reflect faithfully the point of view of the savage, while others look upon them as primarily the result of mythic fancy, inspired by the desire to furnish entertainment. They may, of course, be both at one and the same time.

Practically everywhere animals figure in the stories, and everywhere there are explanatory myths about animals. They tell how the rabbit got its split nose, the fish its fins and its scales, the snake its habit of shedding the skin; why the crow is black and other birds red or blue or varicolored; why birds have feathers; why a bird of a given species lays just so many eggs; why owls hoot; where the rattlesnake got its rattle; where the deer obtained its antlers; why the eagle can soar so high.

There is a fundamental similarity in the myths in many areas apparently unrelated historically. Much the same type of animal-explanatory myth which flourishes in Africa, North America, and other parts of the world, is found in Australia, where contacts with other areas are probably not the explanation of its existence. The Polynesian creation myths contain many elements which suggest the early Greek view, but there is at present no reason to suppose that one of these areas influenced the other. Views about death and about sin are strikingly similar in many apparently unrelated regions, as are stories about a magical tree and those about a flood. These similarities are probably due to the fact that the human mind, similar in fundamental constitution, has again and again hit upon similar explanations in an environment containing similar features.

Another striking thing is the tendency for certain types of myths to spread through contiguous territory. While we do not often see them *en route* to new regions, the wide areas over which a given plot or *motif* is found make irresistible the inference that the story has but one origin in the areas in question, especially when, as often happens, the distribution is continuous.

The importance of the myths and folk-lore of savages lies in the fact that they reflect the concepts of the people, that they are an index to culture contacts, and, above all, that they are the literature of the people. It is an unwritten literature, handed on by word of mouth from generation to generation, with emendations. But no less surely is it a literature which expresses the imagination and the philosophy of folk who have

leisure, who are not content with a world of mere things and mere facts, but who create another world, a world of fancy, sojourn in which makes more bearable the prosaic monotony, the misery, and the squalor of this life.

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CHAPTER XXXVII

DECORATIVE ART

"We breathed into their hearts the love of beauty."—ANATOLE FRANCE.

"He who struck the first pebble against another to give it regular form, gave the first blow of the chisel which made the Minerva and the figures of the Parthenon."—BOUCHER DE PERTHES.

THE esthetic side of primitive life is more developed than one would suppose who knows savagery primarily as a region in which the practical arts and the sciences have attained so little advance. Whether this means that esthetics is essentially primitive and that the modern day importance attached to it is only a harking back to cruder stages, or whether it means that man may easily lose even the early acquired virtues, are matters over which we cannot linger now. In any case, the significance of art for human life is apparent when we consider its wide distribution and the antiquity of the artistic impulse. No tribes are without feeling for art, none have failed to develop decorative designs, none are ignorant of beauty of form, outline, or color. This holds for the most primitive as well as for the most advanced portions of savagery, perhaps holds as fully for the little advanced as for those which have attained a complex and technically efficient culture. Artistic activities play a proportionally larger part in savagery than in civilization. They affect a larger number of individuals and constitute a larger proportion of the culture content. In savagery practically every man is an artist.

PREHISTORIC ART

The universality of art among contemporary savages is not the only indication of the antiquity of art. Archeology affords abundant evidence of art in the Post-glacial epoch of prehistoric times. Apart from the fact that the earlier Paleoliths show an appreciation of form beyond the mere practical de-

mands of the stone tool, the Magdalenian period shows a high development in art. Magdalenian painters produced realistic representations of bison and mammoth which rival the work of modern artists, and do these Paleolithic men great credit, especially when we consider the difficulties of time and place

FIG. XXVII.—A STAG DRAWN ON THE ROOF OF THE MAGDALENIAN CAVE AT ALTAMIRA, IN NORTHERN SPAIN.

The lines are so finely incised that the figure can be seen only at a short distance. It is about two feet long and two feet wide.

under which the artists worked. They modeled human and animal forms. Sculpture in bone and in ivory shows appreciation of form and ability to catch the pose. Incised drawings in these materials depict animals in characteristic attitudes. The paintings at Altamira, in northern Spain, show fine appreciation of blends and shades of color. In the cave art repre-

sentations of animals predominate. No doubt game loomed large on the mental horizon of the Paleolithic hunter and so was prominent in consciousness when his artistic impulses found outlet. This inference is supported by the fact that game animals are most frequently represented. The horse is portrayed much more frequently than the hyena, and the red deer more frequently than the lion. Not improbably, too, many of these had a magical significance, being designed to assist in securing the prey or presumed to insure its fertility. Possibly for that reason the female of the species is more often represented than the male, though the stag, as is indicated by the representation of antlers, is more frequently portrayed than is the hind.

Similarly, when the human form is represented this is usually that of the female. Yet here the artist is not so happy in his achievement as when his subjects are animals. The characteristic features of the respective species are portrayed with remarkable fidelity.

Art degenerates in the succeeding Azilian and other late Paleolithic periods. Its decadence has been a puzzle to archeologists. But culture does not run an even course in development and it is perhaps the rule that one phase of culture lags or retrogrades while other phases advance. So it was in Europe, in the days following the Renaissance, when art failed to keep step with advances in practical and in theoretical knowledge. In the Azilian and Neolithic periods following the Magdalenian, art is weak. But fine feeling for form is shown in the shaping of Neolithic implements. Often these are as much works of art as implements for work. Pottery decoration, practically all of it being incised geometrical design, shows that artistic feeling is not absent and interest is not dead.

The Bronze age is rich in geometrical designs, whereas realistic representations play a scarcely recognizable part in esthetic activities. Save for ornaments, almost all of our knowledge of Bronze-age art is derived from decorations on shields, swords, knives, and other implements. The Iron age continues the decorations of the Bronze age without adding

to them in any significant respect. The pictographs on rocks in northern Europe are crude; they compare unfavorably with the fine work of the Magdalenian artist. Pottery shows feeling for form and an improved technique facilitates the acquirement of symmetry. The decorations reflect a superior artistry, in keeping with the progress in ceramics.

ART AREAS

The character of decorative art is susceptible of geographical treatment. Art of a certain kind characterizes a given region, with borders which sometimes are fairly definite, sometimes merge into the art designs and *motifs* of adjoining regions by imperceptible stages of transition. Indeed, each tribe has an art not exactly duplicated by that of any other. As a rule, however, the art of one tribe is closely related to that of an adjoining tribe, perhaps to that of all near-by tribes. Thus there are art areas which comprise a number of tribes, often tribes which show unlike elements in other phases of culture. The Eskimos, for example, though not a tribe, constitute a culture area and an art area. Eskimo art consists mostly of feather decorations on hoods or coats, or of incised designs on bone or ivory. Much of the latter consists of realistic representations of animals or men. It has been likened to the art of Magdalenian man. The art of the western area of Eskimo culture merges into that of the adjoining Northwest Coast region, a merging particularly marked in the masks of the Alaskan Eskimos. Masks are a characteristic feature of the art of the Northwest Coast, as is the representation of totem animals. This representation is in part symbolic, in part realistic, the type of realism being peculiar to this region. A part of the animal is singled out for portrayal, the fin to represent the whale, the head and legs to represent the frog, the beak to represent the raven, in each instance the part standing for the whole. The manner in which the parts of respective animals are combined into one complex pattern of blanket or totem pole gives a unique character to Northwest Coast art, which is unmistakably different from that of any other area. In the Plains area the predomi-

nating elements are geometrical patterns of various sorts—straight lines, rhomboids, squares, triangles—the decorative elements varying in size and shape. The design is worked in beads or is painted on rawhide. Tipis, however, are decorated with realistic and symbolic designs, such as stars or eagles. There is also incised work on wood, though this is comparatively unimportant except in certain ceremonial religious organizations.

Southwest art is elaborately developed, especially in connection with pottery. Here, too, the representations are of geometrical and realistic designs used on clay vessels and shields, the symbolism almost always having magical significance. Realistic portrayals in clay and in sand paintings also are found, most of these being associated with magico-religious activities and with ceremonialism.

In northern and in southern California basketry is intimately associated with decorative art. In northern California fine bird-feather decoration characterizes the art, especially that of the Pomo. The Pima basketry of the Mohave desert region shows excellent geometrical decoration. Ancient Mexico and Central America introduce us to a higher form of art in sculpture, where realism is prominent, as in representations of the tortoise and of the human form. The Peruvians developed intricate geometrical designs in fine cloth-work—more intricate and finer designs than those used in Navajo blanket weaving. No doubt many of them were intended to be realistic.

Africa seldom shows high development in art. The prevailing forms are sculpture and incised work in wood, with a high development in bronze casting in Benin after contact with Europeans. Australia, too, has little to its credit in the field of art. Here the only intricate art is in sand representations of totem animals, though incised work on wood and bark is not unknown and ornaments of fur and feathers are employed. Melanesia stands out for its representations in wood of animals, particularly the alligator and the frigate-bird. Polynesia has a similar art, and the natives also make

geometrical designs in bark cloth. The tattooing of the region almost always is in curved lines, usually centripetal.

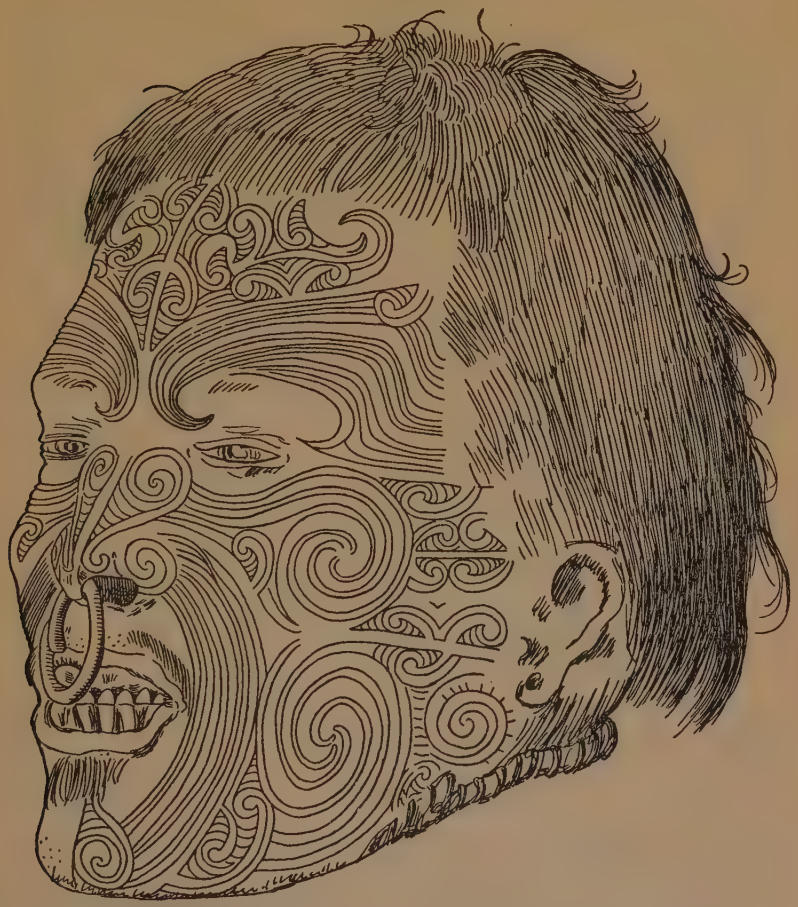

FIG. XXVIII.—A TATTOOED MAORI WEARING A NOSE RING.

There are no straight lines. The designs vary from individual to individual, but always conform to a pattern.

MIGRATIONS OF DESIGNS AND MOTIFS

The migration of designs is one of the best attested facts of culture. We can trace the route of numerous designs from area to area as early as the Bronze age, particularly from the Ægean to northern and western Europe. The spiral design

traveled from the Mycenaean and Ægean regions by way of the Danube to Hallstatt, thence along the Rhine to the Baltic and Scandinavia, thence to Ireland, finally to Britain.

The similarity observable between the art of one tribe and that of another, and between one culture area and that of another—the Plains area and the Southwest, the western Eskimos and the Northwest Coast, Melanesia and Polynesia, Egypt and Greece, Greece and Rome—shows that designs and *motifs* travel from area to area. Designs like the swastika and the cross may have originated in more than one area, as is probably the case, but they have traveled great distances.

FIG. XXIX.—TATTOO ORNAMENT ON THE CHIN.

These represent three types of Maori chin decorations. Although the designs are similar, there are many differences in details.

TYPES OF ART

Realism is one of the predominant *motifs* in art. It is highly developed in Paleolithic Magdalenian art and in the early Mediterranean civilizations. It is not a dominant form in the New World, save in a few areas, but is prominent in the islands of the Pacific, in Melanesia, and in Polynesia. Usually the realism takes a characteristic form peculiar to the area in question, as is true of the Northwest Coast of North America, the Southwest of the United States, Central America, as well as of Melanesia, Polynesia, and Africa. Geometrical designs predominate where the designs are associated with basketry, pottery, or bead work; where these

techniques are highly developed the geometrical designs usually are copied on other materials. Such is the case in the Plains area and in the Southwest. Paintings are not widely spread in savagery. As we have seen, painting is an art well developed in Magdalenian times. The Southwest artist applies color designs to pottery and sand paintings; colored bead work designs in the Plains area are applied to rawhide bags and boxes. Workers in wood make little use of color, though frequently the incised designs on bone or ivory are filled in with color to add sharpness of outline, as is done by the Eskimos.

ART INFLUENCED BY TECHNIQUE AND MATERIAL

The materials with which the artist works and the technique which he must employ often give trend to the art and impose

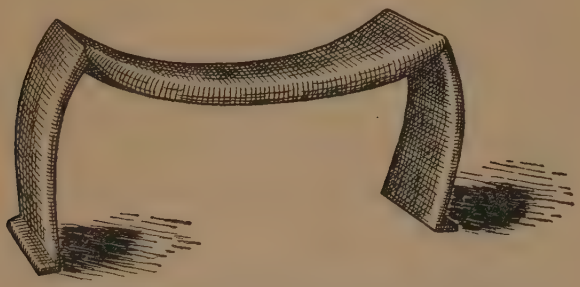

FIG. XXX.—A TONGAN PILLOW OR HEAD REST.

limitations. Thus the worker in pottery finds it difficult to use circles, since they cannot easily be applied to a curved surface; hence straight lines or zigzags predominate. Neither is it easy to represent in pottery the forms of animals or of objects, the result being that geometrical designs and color symbolism predominate. But more important in determining the character of the designs on pottery, probably, has been the technique of pottery-making. The coiling process gives occasion for depressing the raised ridges, and incisions are easily made, though unintended. A continuation of these incisions gives rise to such decoration as is frequently found, especially on early Neolithic pottery. Again, if it be true,

as there is reason to believe is the case, that pottery originated from lining the interior of baskets or of woven bags, the basket or bag when removed would leave the impress of its weave on the soft clay. Much Neolithic pottery contains decorations such as would be left had the pottery been fashioned in this manner. There is similar evidence from the Southwest of the United States, where, it has been supposed, pottery displaced earlier gourds, carried in thongs or withes which left their impress on the outside of the gourd. The transfer of this decoration to the pottery which supplanted the gourd would explain its presence there. Another suggestion of similar import is that the break in the decoration which the Zuñi artist leaves is a reproduction of the break in the coiled basket in which the earliest pottery (presumably) was molded. Conservatism continues the design when the involuntary cause of its presence is removed by independent ceramics.

Fig. XXXI
Hawaiian Feather Work.

A good example of the disposition of a conventional design to receive a realistic interpretation is found in the Plains area of North America. There a U-shaped figure is found on the beaded yokes of many of the women's dresses. The Teton Dakotas say this represents the head and legs of a turtle which is emerging from a lake, the beaded yoke representing the lake. Similar designs appear in several other tribes in this culture area, though no such interpretation appears to be given. The actual origin of the pattern is probably the result of the method of cutting the skin of the deer, and of the manner of wearing it.

A U-shaped turn is made to carry the beaded border around the tail of the deer which is left on the skin from which the

garment is made, or is later sewed to it. "The tail tuft naturally falls just below the yoke because the dresses are fashioned by joining the tail ends of two skins by a yoke or neckpiece. Hence, it seems more probable that the pattern was developed as a mere matter of technique and that later the Tetons read into it the symbolism of the turtle, because of some fancied resemblance to that animal and because of some special appropriateness." [1]

The technique of basketry-weaving often determines the character of the design. When, for example, the worker attempts to incorporate into basketry designs which are realistic he is forced to break up curved lines into straight lines. Circles he can represent only by straight-line figures. Hence the possibility that in some cases, at least, the savage is correct in giving a realistic interpretation to designs which now are, apparently, purely geometrical. The worker in cloth is struggling with similar technological difficulties. Straight lines must represent what previously was expressed in curved lines, and the so-called animal or plant or object is necessarily distorted. Even where the realism can be detected, it is necessarily in distorted form, as in the dragons which Chinese artists weave into their rugs.

ART IN RELIGION, MAGIC, AND MYTHOLOGY

The interconnections of art and religion have been intimate and numerous. Art *motifs* ramify into all corners of the religious field. The prohibition in the *Koran* against representation of animal or human form is designed to prevent worship of man or animal and is an unintentional witness to the disposition of art to influence religion as well as of the tendency of religion to influence art. The symbolism of Christian art, as witness the employment of designs representing the lamb, the cross, alpha and omega, bear ample testimony to the tendency of art to ally itself with religion.

Quite as noticeable is the tendency for art to come to terms with magic. Seldom does magic develop elaborateness without utilization of artistic representations. The motive may

[1] Clark Wissler, *Indians of the Plains.*

Fig. XXXII.—Ancient Mexican Sculpture.

have magical import at basis, but the carrier of the motive is esthetic impulse.

Such esthetic impulse is seen in the sand paintings by means of which the Arunta of Central Australia represent the totem animal in whose behalf the *intichiuma* ceremonies are held. It is shown in the sand paintings and decorations used by the Navajos. It is prominent in the shield designs painted by the Hopis, intended to protect the wearer by the magical efficacy of the design.

In many areas art is linked with mythology. Such is emphatically the case on the Northwest Coast of North America, where most of the art centers about the traditional totem animals, incorporating in the representation some incident referred to in the mythology.

PSYCHOLOGY OF PRIMITIVE ART

The attitudes taken toward respective designs differ with locality, one culture reading into the design one interpretation, another culture reading into an identical design another interpretation. Ornamentation considered beautiful in one locality may not be reckoned such in another. Savage art is no undifferentiated field, but is as diverse in its elements as is the appreciation of it.

A few common principles, however, can be detected. In every area of savagery there is a feeling of appropriateness in connection with the respective forms of art. The savage recognizes that what is beautiful in one context may not be so in another. The ornamentation regarded as beautifying the male may be regarded as no element of beauty in connection with the female, and, conversely, the ornaments and designs appropriate for women are esthetically inappropriate for men. An ornament beautiful on a child may not be beautiful on an adult. A design appropriate to a moccasin is unfitted for a canoe, and the ornamentation painted on a tipi cover would be inappropriate on a man's coat or on a basket. In Polynesia the decorations appropriate to houses are different from the designs applied to cloth or incised on the prows

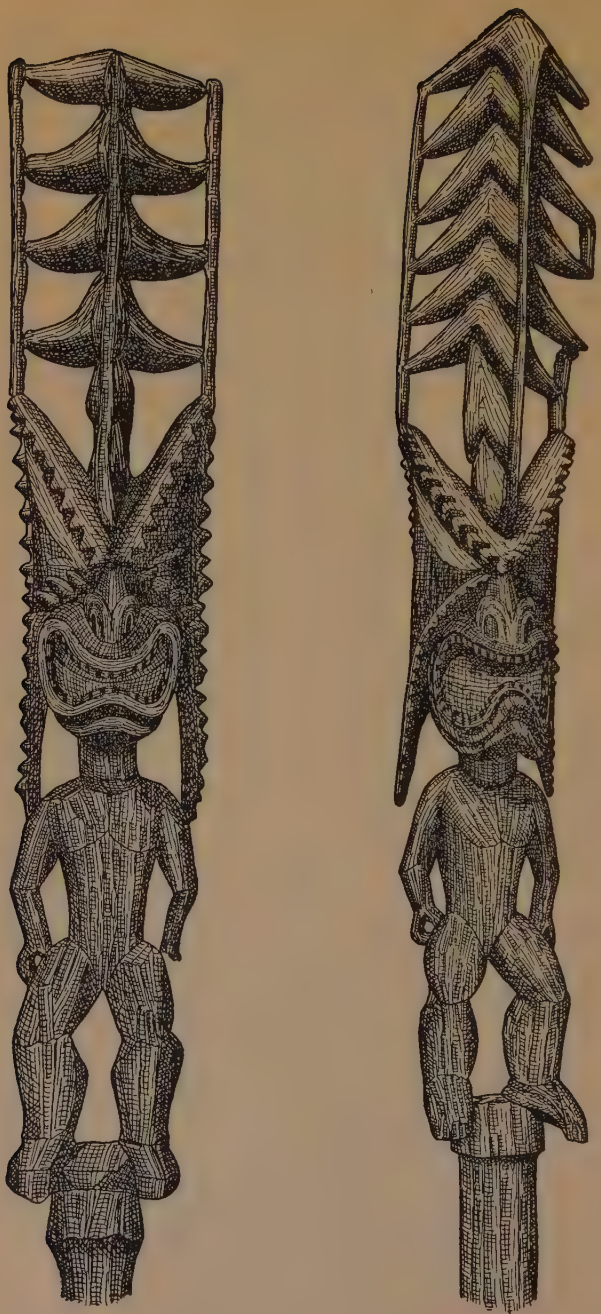

FIG. XXXIII.—HAWAIIAN CARVINGS.

of canoes. No area of savagery is without this feeling of appropriateness.

Nearly everywhere symbolism plays a part, sometimes the leading part, in the appreciation of art. The apparently simple geometrical design may stand to the native for lightning, a tipi, or a bird. The swastika may denote good luck, a man in flight, or a cross-roads. The symbolism can be determined only by consulting the people who employ it—for example, the lamb or the cross in Christianity.

The interpretation of the art is, indeed, a matter of culture. To one people the art design may have religious significance to another it may have magical significance; to another it calls up tradition or mythology; to another it is merely a thing of simple beauty unadorned by any conscious historical or traditional reference.

There is, withal, the element of individual interpretation. Not always does a given design mean the same thing to every individual in the tribe. This is pre-eminently the case in the Plains area of North America, where a given design may mean one thing to one individual and something else to another. In some cases the designs are associated with dreams, so that their significance is known only to the dreamer. Such is frequently the case with moccasin designs among the Arapahoes. In some instances only members of a certain organization know the import of the design. Such is the case among the "sacred" societies of this area and in the southern central woodland area, the *wakana watcipi*. The meaning of the fish and the lamb employed by early Christians in Catacomb representations were known only to members of that sect.

THEORIES OF THE ORIGIN AND EVOLUTION OF ART

The most interesting theory of the origin and evolution of art is that put forward by Henry Balfour. He finds the beginnings of art in the recognition that a thing is beautiful. Beauty is recognized in an object resembling an animal or thing, which is improved upon here and there to increase the similitude. Mere improvement is followed by deliberate representation. Then comes copying upon the part of others

FIG. XXXIV.—A LINTEL AT YAXCHILAN, MEXICO.

An example of Maya art. There are four vertical columns, each containing five glyphs.

who have less originality. Copying leads to two types of change—conscious and unconscious. Unconscious copying leads to considerable modifications of the original design, and new designs are the result of the inaccuracies of copying. New resemblances are seen in the new designs and new interpretations are given them. From Paleolithic art we infer that sculpture was one of the oldest forms of art, and that realism developed to a high stage before geometrical designs were much used. Prehistoric art bears out Balfour's suggestion that sculpture and realism preceded geometrical and symbolic designs.

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CHAPTER XXXVIII

CULTURE AND CULTURE AREAS

THE term culture refers to the complex of achievements which characterize a given group. These fall within the realms of material culture (sometimes called the arts and crafts), the fine arts, including decorative arts, knowledge and beliefs, social and political organization, literature and mythology. Everything which belongs to the group, in the sense of being created by or utilized by it, and possesses the cementing element of continuity, constitutes its culture. It is, therefore, "the sum of all the ideals and activities and material which characterize a group of human beings."

The respective traits of a culture are not clearly marked off, but merge into one another. Where art leaves off and mythology begins is marked by no distinguishable line; where art leaves off and material culture begins cannot be indicated save by an arbitrary line; the divisions between art, knowledge, and beliefs are not discoverable unless the divisions are put there by the classifier; art is intimately bound up with certain phases of social life and often with phases of the political life.

Similarly, each phase penetrates other phases, influencing them and being influenced by them. The interpenetration is so complete that we cannot dissever one phase without removing a portion of others. If one trait of the culture is removed, its art, its knowledge, its material equipment—in short, all other traits—are affected. The different aspects of culture are dependent upon one another in some such manner as the various portions of an organism are interdependent. To the extent that they are interrelated they are interdependent. No item of the culture is independent of the remainder of the culture, no culture trait can persist as it is unless the remainder of the culture persists.

The interdependence of culture traits is apparent when an important change is suddenly introduced from without. Thus when the Chilkats secured stoves from the white man certain important changes in other phases of culture were thereby incurred. The spirits of ancestors used to speak to the people in the crackling of the wood as it burned on the open hearth fire; but no spirits of ancestors came to speak in the black iron stove which supplanted the open fireplace. In the old days many a tribal sanction was reinforced by communications from ancestral spirits; with the innovation of stoves an important bulwark of tribal standards was gone. In the overwarmed houses, poorly ventilated, the people deteriorated physically, the lessened stamina decreased the zeal for out-of-door life, a disintegrating force had entered the culture.

Another instance may be cited from the Plains area of North America. The coming of the whites involved the disappearance of the buffalo, previously the main subsistence of the Indians. There was no longer a compelling motive for the roving nomadic life of the old Plains days. The remnants of the bands were gathered to reservations and fed on canned beef. The value of horses, employed in hunting the buffalo, was proportionately diminished. The vigorous, hunting, horseback-riding Indians became loiterers about the narrow confines of a reservation which made impossible the assertion of the old qualities, the maintenance of the old energies, adherence to the old standards. The changes in culture brought about by the change from buffalo-hunting on the prairies to eating canned food on narrowly restricted government reservations were manifold and culturally disastrous.

Such changes have happened again and again in savagery when a new element was introduced. Christianity has thrown down the old gods and with them the ethics supported by the gods, whether the "gods" were personages or only superstitions which regulated conduct. The introduction of European clothing leads to a degeneration of many of the old arts and almost always to physical deterioration.

In many phases of culture civilization experiences similar changes, due to the introduction of a new invention or a new

idea. Witness Christianity and the numberless ways in which this religion has influenced European civilization; the steam engine and the transformations in manner of living and of travel; the factory system and the ensuing problems of social, family, economic, and political life; the concept and experiment of a League of Nations and the reverberations in domestic as well as in international politics; a nation adopts militarism, and the effects are apparent in a thousand aspects of culture—education, taxation, politics, literature, religious instruction, interpretations of Christianity.

How large is the group which carries a culture? This must be determined by observation. In some cases there are culture groups within a tribe; generally speaking, however, the tribe is the smallest culture group with which the anthropologist works. Often he is concerned to know the culture groups within a tribe, if they exist, but in the main he attempts to define tribal culture, to distinguish the culture of one tribe from that of another. Frequently, again, he is more struck by the resemblances between the cultures of two or more tribes than by their differences. In such a case he treats the tribes as belonging to one culture area, noting, perhaps, the major tribal differences.

There is a tendency for the culture of one tribe to resemble that of an adjoining tribe, in certain features if not in all important ones. The culture of a tribe is related to that of contiguous ones. Indeed, "rarely can a tribe be found anywhere that does not share some of the cultural traits of all its immediate neighbors." Usually it resembles that of one of the neighboring tribes more than that of others, and so its culture may be said to adhere closely to the type or pattern of a certain tribe or tribes. Similar adjacent cultures constitute a culture area. A survey of a large ethnographic region shows that it is composed of a number of culture areas, each containing several tribes. Thus in the New World there is so much in common among the cultures of the Plains area in which the buffalo was hunted that anthropologists speak of this as Plains area culture. The Southwest of the United States has other distinguishing traits shared in large

part by the respective tribes inhabiting that region, and this is called Southwest culture. The same applies to the Northwest Coast of North America, to the eastern Woodland area, to the Arctic fringe, inhabited by the Eskimo, and to other portions of the continent. With sufficiently detailed information, the anthropologist probably could map out the world of savagery into culture areas, though as yet only a small portion outside of the New World has been so mapped.

The lines which mark off one culture area from another are in part arbitrary and overlapping; one culture does not end and another begin at a certain place. Culture areas interpenetrate. Each is disposed to spill over its bounds and invade adjacent territory. As a result, adjacent culture areas usually, though not invariably, have more in common than do those geographically remote.

Culture, then, is an influence or a tendency which permeates tribes and overleaps tribal boundaries. There is in it something more than merely this tribe and that one. It is supratribal, as the language in a given group is supra-individual and an index to the tongue of the individual in the group. When a tribe comes within the realm of culture contacts it is influenced; it cannot, or it does not, bar them from its territory. If, therefore, one knows the cultures surrounding a given tribe, one can predict with almost complete surety the cast and complexion of the tribe's culture, though not the details.

Each tribe, then, is a carrier of culture which, presumably, is in small part its own creation; yet each tribe is a dynamic force in culture, for each interprets the culture in a manner specifically its own, each gives to the culture an expression different from that given by any other tribe.

Culture moves, both through space and through time. It does not remain the same from decade to decade, much less from century to century, and its geographical boundaries shift.

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CHAPTER XXXIX

THE DIFFUSION OF CULTURE

THOUGH each culture has its peculiar form of expression, each responds to influences common to social life. Not all of these are born of the immediate group environment, many of them traveling from one social area to another. A trait which spreads from the center of origin into other groups is an illustration of diffusion. When, for example, the manner of earning a livelihood originating in one group passes on to other groups, there is diffusion of this trait. History abounds with examples of the diffusion of traits in social, industrial, and political life. The methods of keeping time practiced in ancient Egypt pass to Rome and from Rome to western Europe. The improvements of the calendar made by Pope Gregory pass to many nations, though they are not adopted by some peoples who lie within the path of influence. The French metric system takes root in many countries, though some have not adopted it. Paris styles penetrate most of the world of fashion, at least the feminine part of it, and London styles invade the masculine fashion world. Tobacco was taken to Europe, and soon came into common use there, spreading eventually over practically the entire world, until it reached Asia by way of Europe, and northern North America by way of Siberia, encircling the globe. In the more fundamental phases of social life and thought there is diffusion of culture traits. The spirit of the eighteenth-century French socio-political writers inspired the colonists of America in the struggle against English tyranny as well as the people of France against the tyranny of Louis XVI. The spirit of the American Revolution reverberated through France and added strength to the French Revolution. The French Revolution echoed throughout continental Europe, first after 1789, then after 1830, and again after 1848. Military preparedness is,

in part, the spreading of a trait of culture, like preparedness in general; and Bolshevism has shown that traits of another complexion can spread with considerable facility.

Diffusion plays an important part in primitive life as in civilization. The geographical distribution of a trait is sometimes so clearly defined that the area of the trait can be mapped with considerable accuracy. Agriculture has spread in North, Central, and South America, probably from a single center of origin. Likewise, ceramics, a trait whose distribution is nearly coterminous with that of agriculture. Stories built upon certain plots have a definite geographical distribution and this usually is continuous, not widely intermittent.

Diffusion is the mechanical aspect of the spread of a trait, and geographical distribution indicates that the mechanical part is a large one. A social trait has a disposition like that of water to spread over contiguous territory in an effort to find its own level. Yet this does not tell the whole story. Some traits spread rapidly, others slowly, or repeated rebuffs refuse them lodgment.

BORROWING

The counterpart of diffusion is borrowing. There is a human and a social side to the mechanical one of trait distribution.

Social groups constitute more than geographical areas; they are areas with culture soil of varying composition and fertility. In some the new trait readily takes root, in others it can get no hold. The nature and intensity of the reaction to it depend largely upon the disposition of the people and upon their permeability as regards the introduced trait. The French Revolution did not greatly affect the English, though affect them it did; the English "intellectuals" had acquired in large part those rights the denial of which in France had precipitated revolution there, and the motive in England was feeble. Russia it did not affect, not because the social evils were not great, but because the spirit of the revolution could not permeate Russian society. Russia was not prepared for the doctrines of Rousseau—it lived too close to nature al-

ready—nor for those of Voltaire. Only a new order could discover the irony of the old, and Russia was not well acquainted with the new order fast developing in France. But Prussia was being permeated with the new thought, still more the South German states; there the French thought could and did take root.

The Revolution of 1848 affected those peoples who were prepared for the seed, but left untouched those, as notably the peoples of Eastern Europe, who were unprepared for the new movement. Peoples too backward politically were impermeable, however close geographically they might be; those far advanced politically, like Great Britain and the United States, were unaffected, though for a different reason.

In the diffusion of a trait of material culture there are similar limitations. While London merchants were leisurely discussing the possible utility of the telephone, that instrument was spreading with amazing rapidity through America, a country more disposed to try new devices. The civilized world adopted it, while savagery showed no interest. Of what value to savagery is the telephone and the telegraph, supposing the introduction of them possible? Similar observations apply to the spread of the radio.

The facility with which borrowing takes place depends upon the culture context as well as upon the nature of the new trait. The culture must have attained a certain stage of advance or no adjustment is possible. The spread of the telephone illustrates this law: in the main it has gone where there was motive for its use; where it helps business or social life; where efficiency and time-saving devices have value; where science and industry are sufficiently advanced to utilize it.

Culture, then must reach a certain point of development before a new trait can be assimilated. This point of preparedness has been called the cultural threshold. Many a fine idea is culturally fruitless because it is, as we say, ahead of its time, which is only another way of saying that the culture is too backward to utilize the trait. The same is true of inventions and discoveries. The automobile invented in the eighteenth century did not find a place in the industrial life because

few appreciated its possibilities and because, too, there were no paved streets or roads. The steamship of the eighteenth century was likewise a failure, for the reason that the minds of men were not prepared for it and their imagination did not grasp its potentialities. Had Napoleon accepted Fulton's offer of the application of the steam engine to vessels, the outcome of the struggle with Great Britain might have been different, but the Little Corporal's mind had not attained the proper cultural threshold, and the opportunity was lost.

ASSIMILATION

Though the counterpart of diffusion usually is borrowing, this, in turn, is largely a matter of assimilation.

Some traits cannot be easily assimilated; either the culture is too sophisticated, regarding the intruder as "childish" or as "barbarian"; or it is too naïve, not prepared to rate the trait at its true value. Napoleon did not see the value of Fulton's steamboat and was not enthusiastic about its adoption. Fulton and other inventors had trouble enough in securing in English-speaking lands the proper recognition of their inventions, but in any other land they would have had more trouble, and in aboriginal Australia they would have labored in vain. A trait can be ahead of its time or behind its time; in either case it fails of adoption.

Once adopted, it does not flourish full-fledged in pristine purity. The new trait is assimilated in the new social life, sometimes undergoing such considerable changes as to be scarcely recognizable for its old self. It loses some of its old characteristics and takes on new ones. Roman law is borrowed, but must be adapted to new conditions. All adoption implies adaptation, if the trait is to live on in vigor, is to be more than a merely recognizable phase of social life. The spirit of the French Revolution passes through different channels when it goes to new lands, for it responds to the respective national demands. In Spain it is one thing, in the German states something else, in Italy another expression. Each must adapt the thought to its own needs, must sing the words to its own tune, make the music conform to the intervals of the

instruments which it possesses. The new trait, whatever it be, must be assimilated to the new environment if it is to find fertile soil.

Occasionally, the introduced trait carries the driving motive and makes the remainder of social life subordinate to it, rather than subordinates itself to the larger social life. The spread of war fever is one instance; the introduction of machinery is another. The new machine industry transforms the old life. The concept of democracy may call forth a reorientation of the entire social life; Bolshevism may be a trait which dominates rather than is dominated.

DISTRIBUTION AS AN INDEX TO AGE

There is a tendency to suppose that the geographical distribution of a culture feature is correlated with its age. The supposition is implicit in many writers, though few have stated the principle in the form in which they assume it to be true. Thus, the fact that the making of fire is known to every tribe, is taken as an index of the great antiquity of fire-making; the widespread use of stone implements is accepted as an index to their great age as the tools of early man. Widely spread stories carry the same implication: "If the myth be one of the sort which encounters us in every quarter, nay in every obscure nook of the globe, we may plausibly regard it as ancient." [1]

No doubt in many instances the age of a feature is correlated with its distribution, yet instances to the contrary are forthcoming, are, indeed, so numerous that one must question the utility of distribution as a criterion of age. It is true that in civilized life the opportunity for the spread of culture is greater than among primitive peoples. Even so, conditions are not essentially different, the rapid diffusion of traits in civilization having its analogue in the slow percolation from area to area in savagery. When, in the absence of historical information, we make inference as to the actual earlier conditions of culture, such inference must be based on observations where history comes to our aid. If we infer culture processes

[1] Andrew Lang, *Myth, Magic, and Religion.*

among savages of whom we have no history, we must base our inferences on observation of processes which we know have taken place in other culture areas, primitive or advanced.

The supposition that the more widely diffused the trait the greater its age, is based primarily on the fact that a culture trait tends to spread. A new invention or a new idea does, indeed, tend to spread as truly as does an outcrop of measles. It goes from man to man, from group to group, from culture area to culture area. Witness the spread of tobacco.

While a trait is spreading, its greatest age is synonymous with its greatest distribution. But a trait does not continually and eternally spread, or certainly few traits manifest this abiding expansion. There is contraction of culture traits as well as expansion. The spread of the Greek language, of monarchies, of a style of dress, will serve as examples of geographical expansions followed by geographical contractions. Greatest age is synonymous with greatest distribution only when the trait is on the increase; the opposite is true when the trait is on the decrease. Nor is it strictly correct to say that all traits tend to spread. Some show no tendency to travel into foreign territory. Moreover, the facility with which traits make their way into new culture lands varies as much as the speed of transportation devices. Some travel with the relative speed of aëroplanes, others with the crawling gait of ox teams. Culture traits have a dynamic and the dynamic is specific. To infer relative age from relative distribution is to leave out of the reckoning the specific dynamic which is an important attribute of every culture trait. Trait A may be older than trait B, though less widely diffused than B, because A has less dynamic for culture spread than has B. The different rates of diffusion of firearms and of the Copernican theory are examples of the specific dynamic of culture traits. Whether a trait spreads, and how fast it spreads, depends upon its dynamic. Traits do not possess equal potentialities for diffusion, albeit the supposition that relative distribution is an index to relative age implies equal potentiality for diffusion.

The rapidity with which a trait spreads depends also upon

the character of the cultures into which it is introduced. The telephone did not spread with equal facility in all lands, because not all lands had the same degree of culture preparedness. The culture to which a trait is taken must be ready to accept it, or the visiting trait finds no lodgment. The counterpart of the dynamic of traits is suitable soil in the culture areas across whose borders the new trait travels. Moreover, the diffusion of culture implies of necessity older culture traits not so widely diffused; for a trait can travel only into regions in which culture already is established. It then is added to the culture as a more recent arrival among older traits, the widely diffused trait being of necessity younger than the heterogeneous traits amid which it finds lodgment. The case cannot be otherwise when a culture trait spreads.

The alternative is to suppose that migrations of peoples carried the trait over the area through which it is diffused. But this is sheer geographical extension of a culture group rather than culture diffusion.

Where diffusion is not a superimposition upon older traits, it is a displacement of them; as, for example, when the metal plowshare displaces the wooden share; or when the automobile displaces horse transportation. Here, of course, the more widely spread trait is the more recent, the less widely spread one is the older. This is the story whenever diffusion means introduction of a new trait by displacement of an older one—a not uncommon feature of diffusion.

There are, then, reasons for not accepting diffusion as an indication of the comparative age of culture traits. But one should adduce something more conclusive than *a priori* reasons plus illustrations. In the last event empirical issues must be the deciding factor; they must be the reasons for or against a theory.

Unfortunately, savagery offers little help, for we do not know the historical processes in savagery when development there goes on uninfluenced by civilization. We can solve our problem there only by taking the answer for granted before we start—and this is not the most approved method. No help seems forthcoming unless we ask the question of the

historical civilizations where an answer in terms of fact can be given. Nor will this necessity lead us much astray, for the conditions under which diffusion works in civilization are different in degree rather than in kind from those under which it goes on in savagery.

Wissler likens the spread of culture to the outgoing waves which ensue when a pebble is dropped into a pool of water. But a more apt illustration is the attempt of water to find its own level; the course is irregular; the trait makes progress here rapidly, there slowly, at times encountering impassable barriers. In order to put the theory to an empirical test we opened the book of Wissler [1] at random and made a list of the first fourteen culture traits there referred to.

The following features are mentioned on pages 150-157; Pottery, paint, swastika, spiral, cutting off a finger, sacrifice to the sun, sacrificial blood-letting, human sacrifice, hitches, weaving instruments, age-grade societies for men, fire drill, chipping of stone, lance. With regard to these respective traits we ask two questions: Is the area of intensive development the area of origin? Is the center of the area of distribution the place of origin? In the Old World the area of intensive ceramics has shifted from time to time. Probably there was but one area of origin in Europe. Hence we find the true center of origin only if we take the correct century as the one in which to identify intensity of development with age of the trait. Otherwise we shall determine the place of origin now as the Continent, now as Britain, now as the valley of the Nile, now as the Ægean.

Owing to the perishable nature of the material, it is difficult to discuss the age of paints. So far as evidence permits inference, the story is much like that told by pottery.

The migrations of the swastika are not so well vouched for as the travels of the spiral design. The latter centered in the Ægean area, thence found its way to Scandinavia, and from there to Ireland and to Britain. Meanwhile the center of distribution was shifting to the north and west, for the spiral did

[1] *Man and Culture.* New York, 1923.

not spread with the same speed to east or south, although, of course, the place of origin was not shifting.

The practice of cutting off a finger cannot be treated historically, and we pass to the next culture trait in the list, sacrifice to the sun. In the Old World such sacrifice centers in Iran, but at a later date, when the Mithraic cult had penetrated the Roman Empire to the west, it is perhaps more prevalent in Europe than in Iran, while at another time it centers in Egypt. Here, again, there is possibly a single center of origin, though the center of distribution shifts from one century to another and so tells a various story, each succeeding tale contradicting to that extent the previous one, each falsifying the testimony as to place of origin. We are thus brought back to the conclusion drawn above: distribution is not an index to the comparative age of culture traits, nor is intensive development indicative of place of origin. Knowledge of distribution and of intensive development must be supplemented with a temporal perspective: we must know the historical conditions. Age cannot be inferred from distribution nor from intensive development, since range and intensity differ from century to century, even from decade to decade. A phase of culture does not radiate like sound in a uniform medium, traveling with equal rapidity in all directions, dying down as it gets farther away; but rather, like a stream of water, it flows hither and yon, now slowly, now rapidly, now spreading out in long depressions of immense area, now confined within narrow and tortuous channels. Though there are seas and lakes of culture influence, there are also bays and inlets and even trickling courses. Sometimes the place of origin is a lake, sometimes it is but a spring, the culture developing and expanding as it travels from one locality to another, so that an area of recent occupancy may be the area in which the trait is most widely distributed and most intensively developed. Like Christianity, many traits of culture flourish best far from the place of origin. The place of origin remains fixed, whatever that may be; meanwhile the center of distribution shifts like the center of low barometric pressure, and the center of intensive development likewise is as liable to shift as

is the center of a cyclone area. Cataclysms are more startling than slow infiltrations, but the latter are none the less effective in making significant changes. The conditions which lead to intensive cultivation of a trait are various, and do not leave the implication that the region in which a trait originates is the region in which it attains most intensive development. Distribution is not an index to age. The tendency to spread differs with traits and with culture areas. Moreover, the disappearance of traits is a fact as well established as the appearance of new traits; the disappearing trait shifts the bounds of distribution, with other implications of age than the geographical distribution would imply. Similar isolated traits imply prior diffusion followed by contraction, or they represent independent origins, or have come from a single intruding foreign culture—as when European civilization penetrates various regions of savagery, leaving its impress upon discontinuous areas.

INDEPENDENT ORIGINS

Whatever weight we give to diffusion, we must somewhere allow for the origination of new traits, admitting, of course, that these will be but the alteration of the old, the following out of a suggestion inherent in achievements already realized.

Graebner and his followers would interpret all resemblances as due to diffusion from one center. This is allowing too much weight to the mechanism of diffusion. There is at work, along with borrowing, an inventiveness, an instance of which is the process of assimilation. Sometimes social life develops new traits out of its own culture. New ideas spring up and spread through the group, perhaps overleaping its bounds and settling down amid other groups. History furnishes instances of both diffusion and independent origin. In the absence of help from history, can we determine when a widely distributed trait is due to independent origins, and when it is due to diffusion?

As we have indicated, diffusion is determined by the state of preparedness of the cultures lying within the area of diffusion. But such preparedness as makes borrowing easy and suggests diffusion also makes independent origin the more

probable. The stage of preparation which makes the soil fertile for diffusion makes it suitable likewise for the origination of the trait. If certain economic activities spread easily, these might arise independently in at least some of the areas in question.

Yet while independent origin might account for the presence of a trait in any one of the successive areas in which it is found, it could not account for its presence in all of them. Nor could independent origin account for such continuity in geographical distribution as we habitually find when diffusion is inferred as the cause of the presence of the trait. The wonder would be that the same trait should arise in mutually contiguous areas and be simultaneously present.

When similar traits are found in distant tribes with no such traits bridging the geographical interval, there is reason to attribute the similarity to independent origins, unless historical contacts can be shown or inferred.

Flood stories, for example, are almost world-wide. The account in Genesis has its parallel in the earlier Babylonian and Sumerian accounts, from one or both of which, no doubt, the Hebrew account is in part derived. Greeks, Hindus, the peoples of southeast Asia, Polynesia, the New World, had accounts of a flood. Some of these, no doubt, go back to a single center of origin. For example, the stories told by the Algonkian tribes have certain similarities in details which imply derivation from a single source. But it is not likely that the Algonkian type is derived independently of the flood stories of other regions of the New World, those of the Northwest Coast or those of the Southwest of the United States, for example. Quite possibly the stories in the New World go back to a single origin, the various renditions representing local specializations.

That the Flood story is native to the New World is probable in view of distinctive elements which it contains, and in view of the fact that the kind of observations and inferences which elicited it in the Old World may easily have given rise to it in the New World, whence its distribution to adjoining

tribes would be assured. Yet this would not prevent the assimilation of elements from the Old World account, when this was introduced by missionaries and other Europeans, and it is probable that there has been much grafting of Old World elements onto New World accounts, even as two different accounts of the flood have been interwoven in the account in Genesis. As an illustration of the difficulty of unraveling the aboriginal from the introduced the following account of the Papagos, as given by Frazer, will suffice:

"The Papagos of southwestern Arizona say that the Great Spirit made the earth and all living creatures before he made man. Then he came down to earth, and digging in the ground found some potter's clay. This he took back with him to the sky, and from there let it fall into the hole which he had dug. Immediately there came out the hero Montezuma, and with his help there also issued forth all the Indian tribes in order. Last of all appeared the wild Apaches, who ran away as fast as they were created. Those first days of the world were happy and peaceful. The sun was then nearer the earth than he is now: his rays made all the seasons equable and clothing superfluous. Men and animals talked together: a common language united them in bonds of brotherhood. But a terrible catastrophe put an end to those golden days. A great flood destroyed all flesh wherein was the breath of life: Montezuma and his friend the coyote alone escaped. For before the waters began to rise the coyote prophesied the coming of the flood, and Montezuma took warning, and hollowed out a boat for himself, and kept it ready on the top of Santa Rosa. The coyote also prepared an ark for himself; for he gnawed down a great cane by the river bank, entered it, and calked it with gum. So when the waters rose, Montezuma and the coyote floated on them and were saved; and when the flood retired, the man and the animal met on dry land. Anxious to discover how much dry land was left, the man sent out the coyote to explore, and the animal reported that to the west, the south, and the east there was sea, but that to the north he could find no sea, though he had journeyed till he was weary. Mean-

while the Great Spirit, with the help of Montezuma, had restocked the earth with men and animals." [1]

If we analyze this account we find that much of it is undoubtedly aboriginal, though having a similarity with elements in Genesis. Thus the belief that the earth and non-human animals were created before man appeared on the scene is in keeping with common beliefs on this continent, beliefs which undoubtedly antedate European influence.

The use of clay to create the first man, Montezuma, suggests the use of earth in Genesis in creating man, but since it is a common belief in the Southwest of the United States that the first peoples dwelt in an underworld, we cannot be sure that this is a borrowed trait.

The first days, here as in the Garden of Eden, were happy and peaceful. But so they were in practically all accounts of the pristine condition of man, whether we take Hindu, Greek, Hebrew, Northwest Coast, or other accounts.

The Flood comes. But so it does in many cultures, either as a primary condition, as on the Northwest Coast and among the Algonkin, or as a later episode of human history.

Nor is it clear that the use by Montezuma of a hollowed log and by coyote of a hollow reed, even one calked with gum, represent Old World influence, since a man or an animal attempting to survive the Flood would naturally make use of a substance which floats, and calking with gum was widely practiced by the Indians.

The remainder of the account may leave us dubious about outside influence, but the Indians of this region were doubtless familiar through hearsay with the fact that there was water to the west, east, and south of them, while a great land area stretched away toward the north. And, of course, if all forms of life had been destroyed, it would be necessary to restock the earth, and this lot would naturally fall to the survivors, Montezuma and coyote.

Again the distribution of hieroglyphic writing is an instance of diffusion, independent origins, and local specialization of the diffused trait. We find it in ancient Mexico, China,

[1] James G. Frazer, *Folklore in the Old Testament.*

Egypt, Crete, Babylonia, among the Hittites, in Transcaucasia (the proto-Anzanite). The writing of the New World undoubtedly originated in that hemisphere and was uninfluenced by developments in the Old. Whether the Chinese system is historically related to those around the Mediterranean it is impossible to say. On the other hand, although the hieroglyphic systems in use about the Mediterranean represent five different families of language, one would not admit that the device of representing language had as many independent origins in this area.

"Certainly the five families of Oriental hieroglyphics, like the languages of the people who used them, are independent of one another. Can we admit, however, that, in a space so limited and among peoples dwelling so closely together, these varied attempts had no common origin? It is unbelievable. We cannot avoid seeing, in these very early periods, a common pictography, of which each people would have taken advantage, according to the needs of their particular language, and following their individual genius, quite independently of their neighbors." [1]

Similarities arising out of independent origins may be due to one of three conditions:

1. They may be survivals from earlier times. Thus the marriage rites prevalent in North America and in Europe are in each instance a survival of Roman customs, although they represent diffusion as well as survival. But the tabu upon the use of iron in certain religious rites which is found both among the Hebrews and among the Romans is probably an instance of independent survivals and not a case of diffusion of culture.

2. The similarities may be due to parallelism in development. Thus the calendar used by the Mayas has many elements in common with that used by the ancient Egyptians, but it is probable that each developed independently out of a similar cultural background. Irrigation in the New World and in

[1] Jacques De Morgan, *Prehistoric Man a General Outline of Prehistory*, p. 268. New York, 1925.

the Old probably represents independent origins stimulated by a similar need in similar environments.

3. The similarity may be the result of convergence, of deviation within two cultures which become more alike as they develop. Thus the forms of government in Germany and in Austria have come independently from older monarchies, and the governments in many South American countries are examples of convergence. We lack historical information, but it is probable that many forms of magic in various tribes are examples of convergence, and that a like statement holds with regard to numerous culture traits.

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CHAPTER XL

THE VARIED ACHIEVEMENTS OF MANKIND

THE physical make-up of man has not varied greatly throughout the long periods of time in which we have record of him. Meanwhile his culture has undergone change of every variety and hue. Little do we have in common in religion, science, poetry, or the fine arts with Paleolithic man, though our physical structures are wonderfully alike. Indeed, in culture we have little in common with the ancient Assyrian, the modern Tahitian, or the aboriginal Australian, though plainly we belong to the same biological species.

The differences are not merely from group to group but are scarcely less marked if we make the comparisons within the same group from century to century. How different our culture is from that of the Colonists who greeted George Washington, how different is modern England from the England of Chaucer! In no culture group have men's achievements been of even pace; in some centuries they have been relatively fixed, in others they have forged ahead with seven-league stride.

When we go from one culture area to another we encounter new ways of thought and behavior. The cultural atmosphere in aboriginal Australia is in marked contrast with that of an African tribe, and in Ceylon, or in the Andaman Islands one encounters equally emphatic contrasts.

Indeed, the world is a mosaic of variegated cultures, bearing witness to the manifold possibilities of man the culture-maker. Culture differences are as inherent and abiding as individual differences, though cultures, like individuals, change.

The Eskimos, who are acclimated to the rigors of the Arctic fringe, are a hardy folk content with snowy wastes which would be the despair of those from southern lands whose natures are tempered to milder climes. Yet the Eskimo would

not change his place of abode; once away from it, in London or New York, he pines to return to his frozen deserts. He has fitted his life and his activities to Arctic regions, adapting himself to hardships which are unescapable. His little kayak plies the open waters, his harpoon seeks its prey, his cunning provides him food where other folk would starve. Watch him on land: Taking water fowl by strategy, deceiving the resting seal, enticing deer into death traps, outwitting the wily fox. There is no characteristic of an animal which he does not know, no weakness or credulity of which he does not take advantage. During the long evenings he finds comfort in songs or in tales, and he learns to while away the time in social gatherings. He carves animals out of bone or ivory and cuts designs on his harpoon handle. Day by day and year by year his life is rounded out in a fullness and lived with a satisfaction of which we in distant lands of foreign cultures are ignorant. The dangers at which we would shudder are quietly taken as part of the day's work.

Among tribes living on the Northwest Coast there is a different environment and a different response. The people fish for a living, but the supply of salmon is so abundant and can be depended upon with such surety that permanent abodes are possible. Large plank houses are built and adorned with posts and crests of cedar. In the interior of the house one finds a fire, benches, and numerous boxes. Here two or three families may live, but each has its own portion of the house. There is time for dancing and singing, for the telling of stories and the instruction of the young. There is interest in social and political matters, too. The tribe is divided into totem groups which are social and exogamous units, for a man must seek his mate outside of his own totem group. Moreover, some of these are bound together into a functioning unity, the remainder forming another moiety of the tribe.

The Plains area introduces us into another culture atmosphere. The native has adopted the horse and has utilized it in hunting, war, and work. He follows the buffaloes, for they are the mainstay of life and a source of valuable hides as well as of food.

And how he loves to fight! At any rate, he is continually at it. Almost always his stories describe fighting. His dreams come from beings who tell him when to lead out a war party and how to secure scalps. He is the fighter *par excellence*. A dance celebrates the return of the war party—if it returns.

In the Southwest are permanent abodes, mud brick houses of two, three, or four terraces, perched on high mesas. The water must be carried from lower levels, where also the grain is cultivated, for the people are dependent upon agriculture.

The visitor glories in their picturesque ceremonialism. The underground dwelling, the *kiva,* is an inner sanctuary where the priest makes ready for the open-air celebrations, much of which is of an esoteric nature. Fun they like, and there are clowns, but there is also much solemnity.

The decorative art is mainly freehand painting on pottery, the geometrical patterns which predominate being well devised and well executed; the combinations of color are both daring and pleasing.

In Mexico and Central America there was a much more highly evolved social and political structure, a culture which had a kingship, a stratified society, a system of seminaries and of nunneries, a highly developed priesthood, and temple rites. Human sacrifice was practiced by the Aztecs, who had progressed far in religious zeal. The pyramids, the roads, the large buildings and building stones, the sculptures, the writing, the calendar system, the work in metal, display a much higher step in culture than is found in North America.

African culture is almost as diverse in various portions of that continent. For many the Bushmen of the Kalahari desert represent the lowest stages in which contemporary men have lived.

Adjacent to them are the tall and lordly Kafirs, cattle-breeders, fighters with an elaborate military organization, using spears and skin shields to good purpose, developing strategy and embarking on campaigns of conquest. Their mythology is rich and highly imaginative.

On the west coast, near the equator, in Ashantee and Da-

homey, flourishes a culture suggestive of medieval Europe. There are four classes: royalty, nobles, common people, and slaves; a disciplined army; court etiquette and royal prerogatives. Human sacrifice is practiced, and there are temples, priests and seminaries.

Far different is life among the simple Veddas of Ceylon. They know no other habitations than caves, rock shelters, or rude brush huts. Ceremonialism is well developed, but the social and political life is as simple as the unelaborated material culture.

In the Andaman Islands was a culture almost as simple. The peoples knew nothing of tribes more than twenty miles distant. They had no organized social or political life, being guided by the elders of the village community and adhering to custom and tradition. Close to nature, they learned the uses of plants and of trees in the locality, believed in crude spiritual beings, and in elaborate magical formulas and practices designed to make life more tolerable. But, simple as it was, the positive attributes of their culture are nowhere duplicated in their entirety, for Andamanese culture, like every other of the thousands on the globe, has its distinctive characteristics.

So with each of the hundreds of tribes in Australia, though, to be sure, many adjacent tribes share common traits. Yet nowhere else do we find a people like the Aruntas, of Central Australia, with their complicated kinship system, marriage classes, methods of securing game, initiation ceremonies, and magical rites, of which the rain-making and totemic ceremonies are deservedly famous.

So one might adduce instance after instance of the specific nature of culture and of the extent to which a people works out its salvation in ways peculiarly its own. Each is evidence to that extent of the independence of culture and of the creative ability of men, wherever they live in cohesive association and co-operatively cope with nature and their fellows.

Having made their world, they are, of course, circumscribed by it, for it makes them as truly as they make it. But the varying abilities of men, as manifested in their diverse human

accomplishments, should make us pause long before we accept current theories of race superiority and inferiority. The lowly Australian is superior to the European in his ability to cope with his world with the instruments which he possesses. The European may deal better with it, but in doing so he makes use of other culture devices. Most Europeans would perish of cold or starvation in regions in which the Eskimo not only eke out a living, but also develop and maintain a culture.

It is not so much that men as individuals are superior to others, comparing those of one culture with those of another, as that they are different. The incentives are not the same, the possibilities at hand are different, the accomplishments are nowhere identical. The civilized man is what he is because of his culture, and for it he, as an individual, is little responsible. And so of the savage.

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Conclusion

CHAPTER XLI

ANTHROPOLOGICAL PROBLEMS

PROBLEMS OF ANCESTRY AND OF RACE

We speak glibly of man's relationship to the apes, but in the evidence of this relationship there are many gaps. Prehistoric man resembles the apes more than does contemporary man, but we do not know to what extent this is due to difference in function, and function is intimately related to structure. Moreover, if early man resembles the apes more than does contemporary man, then, if there be a common ancestry, the early forms of apes and the early forms of man should be more alike than are contemporary apes and contemporary men. But this, as a matter of fact, is not the case. Early forms of apes are less like early man than are contemporary apes.

Granted the common ancestry, the question arises: Why did man become man? Why did he depart so far from the type of common ancestor and diverge so significantly from the common Primate type? To this question we have no answer. We can only say it was because he was man, and this is little more than saying that because he diverged as he did he became man.

Neither are we able to determine the reason for race differences. The cause of race differences has been attributed to environment and its influence upon the secretions of the endocrine glands. But race differences persist, so far as we know, indefinitely in a common environment, and we do not know from any empirical evidence that the endocrine glands function differently in the different races.

Pigmentation may be a function of climatic conditions, but the evidence on this point is unsatisfactory, though suggestive.

We know that type of nose is correlated with humidity and with temperature, but regarding the causes of the major portion of race differentiæ we have no inkling of an understanding. No one knows why the negro has short, fine, curly or kinky hair, and the Mongoloid heavy, coarse, long hair. Neither do we know to what extent many so-called race characteristics are the result of function, and so are individual acquirements rather than inherited race traits.

PROBLEMS OF PREHISTORIC CULTURE

We do not know why man became a maker of tools, and it is not likely we ever shall. We merely recognize the fact.

Year by year the problems regarding the age of the various divisions of the Paleolithic are being solved with more precision. Eventually we may be able to date them fairly accurately in terms of years, or at least in terms of centuries, rather than, as now, for the most part, inaccurately in terms of millennia.

The distribution of these early cultures is a matter of interest, and one on which evidence is accumulating with great rapidity. We can map the areas of distribution of the various Paleolithic periods in Europe, though new information on this matter comes to the archeologist continually, but we know little about the distribution of Paleolithic cultures in other parts of the Old World and cannot synchronize them with the corresponding cultures in Europe.

Thus the contacts of cultures in prehistoric times are not well known, although there is evidence of trade even prior to Neolithic times. The presumption is that in the Old World there was only one origin of stone-working and only one of metal-working. On the other hand, we know that the working of metals developed in the New World without influence from the Old. The fact that the sequence in the New World, as in the Old, was from stone to copper or bronze, suggests that this order of development is not an accident of human progress, but is inherent in the conditions under which culture evolves.

IS ENVIRONMENT RESPONSIBLE FOR CULTURE?

However important environment may be, we cannot accept it as responsible for the development of culture. To do so would leave us with the problem of why man did not develop his culture earlier and of why it has at times degenerated independently of changes in environment. It would leave us with another insoluble problem, namely, why the same environment gives rise to different cultures, and why different environments support a like culture.

The elements of the material culture are, of course, based on the physical environment. But various cultures utilize the environment in such diverse manner that not until we know the culture do we know what elements in the environment will be utilized or how they will be utilized. One culture resorts to irrigation in a desert region, while another in similar environment depends upon wild seeds and the smaller animals which share with man the dreary wastes.

Economic conditions are more apt to influence social life when they are in flux than when they are stationary. The correlation of economic status with social advance may not indicate the influence of the one upon the other, but each may be a phase of the achieved advance in culture. That is, it is not because people are agricultural that they are more advanced socially, nor *vice versa,* but because they are advanced they have both agriculture and a high form of social life.

But social life is comparatively independent of economic advance. The Greeks were far more advanced socially than economically, and many a highly industrialized community is socially crude. On the other hand, a transition to agriculture, pastoral life, or industrialism usually involves important social readjustments.

SCIENCE AND PRACTICE

Primitive science has a pragmatic turn. There is little interest in knowledge for its own sake. The mythological explanations of phenomena to a certain extent are an exception to this statement, but even these usually have a pragmatic

trend. The savage is interested in the weird and catastrophic because he fears them and wishes to meet them in helpful manner. As with men of higher culture, his great difficulty is in separating observation from preconception, his tools of critical analysis being blunt and misshapen. Nevertheless, he has both a working and a theoretical science. Much attention has been paid to the false science of primitive man and the ethnologist has given little heed to the correct science. We are more prone to emphasize his superstitions than his knowledge, his errors of judgment than his correct inferences. As a matter of fact, the mixture of categories of which the savage has been accused is a misunderstanding of the working of his thought. He mixes things in his categories which we do not mix in ours, as he makes distinctions where we fail to make them, but there is no evidence of a "pre-logical" stage of thought in savagery. The savage thinks by the same rules of logic which we use, positing other premises and coming to other conclusions, but proceeding by no pre-logical mode of inference. Unless every outgrown error in European science is to be accepted as evidence of pre-logical thought, there is no reason to attribute the errors of reasoning on the part of the savage to a peculiar mental machinery which is his unique possession.

MAGIC AND FAITH

Much which goes by the name of magic is, therefore, merely crude science. But magic frequently has a twofold aspect. It consists of things which are confirmed, or seem to be confirmed, by experience. The rain-making ceremonies are performed and the rain follows. Instances of "this after that" seem to confirm the conclusion that the ceremony induces the subsequent fall of rain.

But there is also the element of faith. Whether or not the rain follows, the savage persists in the belief that the ceremony has efficacy. This may not be the case if the anticipated result never follows, but it may be so though the anticipated event occurs in only a small percentage of cases. Where it fails to occur the explanation may be that a more powerful

magic is working counter influences, or that the ceremony or acts were not performed in the proper manner—the means are adequate but were not employed—or the savage may profess an inability to account for the failure of the magic. Faith, however, enables him to detect results where skepticism finds none, and faith leads him to repeat an experiment which cool calculation would not justify. Thus he both leads his magic and is led by it.

ORIGINS OF RELIGION AND OF ETHICS

The anthropologists are not agreed as to the origins of religion and ethics. Some find religion essentially a psychological phenomenon, hence they look for its origin in the psychological make-up of the individual. Others view it as essentially a social phenomenon, in which case its origin must be found in some phase or phases of group life. To others it is a rationalization, and the logical inferences of savages must be consulted as to origin. It is obvious, then, that in the absence of agreement as to what constitutes religion a difference of opinion as to the origins of religion will maintain. Many, however, feel that whatever we take as the origin or nature of religion, we cannot presuppose that there has been either uniform development or a single origin. Religion may have had many different origins and many different lines of development.

A similar observation applies to ethics. If ethics be regarded as essentially social behavior, its stimulus must be found within the conditions of group life, while if we regard it as a personal matter we may look for origins in individual behavior and individual attitudes toward others within the group.

The two points of view are supplementary and not mutually exclusive; both ethics and religion may be viewed from the social angle and likewise from the angle of individual attitude and reaction. Neither point of view is sufficient without the other if we are concerned with actual religion and actual ethics.

PROBLEMS OF SOCIAL MORPHOLOGY

Social morphology is a description of groups which function as entities, such as a tribe, a clan, a totemic group, a religious cult, a secret society or age society. When we become acquainted with the group it is already functioning, and we have practically no information about the inception of its activity, though we may find elements which would be stimulated by a prior group activity. Thus one's attitudes toward fellow-totemites are undoubtedly the outcome of common interests and values, though such common interests and values would facilitate the formation of the group. The two factors have such an intimate interplay that usually it is impossible to decide which one precedes the other, either being sufficient to account for the existence of the other. Clans which function independently may assimilate and give rise to a larger division, perhaps a moiety, or a moiety may break up into clans and so the larger unit give rise to smaller component parts. At present we cannot determine in a single instance which process has been at work. Nor should we suppose that the process of one area is necessarily that of another.

THE DEVELOPMENT OF CULTURE

The last seventy-five years has been the heyday of anthropology. Since the middle of the last century it has developed from chaos to organization and from scattered fragments into a systematized discipline of academic study.

During this period of rapid development the evolution hypothesis was being exploited and the anthropologist was interested in origins. Had the period of development been subsequent to the predominant interest in evolution it is not likely that anthropology would have been concerned primarily with the evolution of culture.

Following the lead of biology, the early evolutionary anthropologists were disposed to think that culture had developed in a unilinear sequence in which each phase of it had common ancestry with every other similar phase. The ideal of Tylor in anthropology was like that of Lyell in geology:

to find strata of culture which would reveal the sequence of development. But since there was no physical superimposition of one stratum upon another it was necessary to use other criteria of comparative age. Spencer found this in the simplicity or complexity of the culture phase, the process of evolution being, so he conceived it, from simple to complex. Hence every complex phase of culture was resolvable into simpler phases out of which it had evolved. Even admitting this, the course of procedure might be considered difficult, since there remains the problem of what particular simpler forms constitute the earlier ones out of which the complex phase has developed.

Admitting that our political institutions, for example, have their simpler forms with gradations to a condition in which no political institutions can be recognized, the fact remains that there are numerous forms of simpler political institutions. One form is found in the Northwest Coast area of North America, another form in Polynesia, another in Melanesia, and so on. If one of these is simpler than another, the former is assumed to be older than the latter. This might be provisionally admitted were it likely that the forms in the respective areas had always been as they were when discovered by Europeans; but since there is reason to suppose that change goes on in every culture area, though more rapidly in some than in others, there is little justification for supposing that B developed from A, or C from B, merely because A is simpler than B and B is simpler than C. Moreover, we know that in many instances development has been from complex to simple, instead of *vice versa*. This has happened, for example, with language and with kinship distinctions, and there is reason to suppose that, in many areas, it has happened with other phases of culture. Hence the theory of Spencer must be rejected as a principle on which to base a reconstruction of culture.

Many evolutionists have followed a principle of logical reconstruction. The "logical" has varied considerably from one writer to another, nor, for the most part, have the respec-

tive writers formulated their principles, but have followed a silent theory made for the occasion.

One of these is the principle of so-called necessary presupposition. There are, of course, certain necessary presuppositions. A people cannot practice agriculture unless they have edible plants; they cannot have domestication unless there are domesticable animals; they cannot have canoes unless there are waterways; they cannot do work in wood unless wood is available.

Moreover, one phase of culture may presuppose another phase. A people cannot have easy communication at a distance unless there is writing; they cannot have large buildings unless there is skill in architecture and engineering; they cannot have irrigation unless there is a minimum of engineering skill; they cannot travel great distances by sea unless they have large and durable watercraft. There is, again, a continuity in culture which should be a guiding thread in reconstructing the past. Culture does not develop independently of preceding forms of culture; each new phase is but a modification of a previous one; each new thing is somewhat old; the novel is built on and out of the familiar. Hence many have turned to what they are pleased to call "historical" reconstructions—a subtle implication that other methods of inference are unhistorical. These are attempts to proceed by limiting attention for the time being to a selected culture area in order to infer the course of development there and without supposing that what happened in that area must have happened in others. With this supposition there must be complete agreement; but the reconstruction is in no sense historical, being, on the contrary, highly non-historical. Historical implies that the sequence is known, whereas the problem for the ethnologist is to infer rather than to observe or record the sequence. An intensive survey of a given culture area often acquaints us with features which we miss when we survey a number of culture areas in the large and may afford cues to the trend of development in that selected area.

But unless we have guiding principles of reconstruction we cannot know how the culture has developed. Actually, there-

fore, we apply to the specific area the principles of reconstruction already determined. There is, then, a definite limitation to the application of the principle of "each case on its own merits."

A case considered as an isolated instance has no merits. It has merits only in so far as it is a member of a class, and to interpret its significance we must subsume it under the class of similar phenomena. In so far as a culture area is regarded as unique it is not possible to reconstruct its past. If its evolution has proceeded according to certain principles, this means that the principles have been discovered outside of this area. One instance does not justify inference more than one swallow makes a summer. And if one swallow heralds a summer it is only because we know that it has happened so in the past.

AIMS AND IDEALS IN ANTHROPOLOGY

Within any branch of science, natural or social, there are contrasting aims and ideals among its devotees. Not all aim at the same thing, nor do all have the same ideals regarding the results and objectives of the discipline. This is more emphatically the case if the science is vigorous and is developing. Anthropologists represent a manifold of viewpoints and methods. There are those who would have us pursue anthropology for its own sake, as many an artist advocates art for its own sake. They justify this position by the assertion that such devotion best advances the science; and all who are devoted to a science wish to see it improve in content and method. Others value anthropology primarily as a contribution to an understanding of human culture. It is not because peoples are savages that such anthropologists value a knowledge of their life and activities, but because savages are men and because without a knowledge of primitive cultures we remain ignorant of a large portion of human life. Others, again, point to the artificiality and formality of the division between primitive and civilized man, insisting that in many respects the distinction is not significant. The primitive is in all of us, and there are elements of civilization in

all savagery. Elements of primitive culture permeate the higher civilizations, and there is no culture so primitive that it does not contain the essentials of civilization. Anthropology makes the whole world kin.

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CHAPTER XLII

CONCLUSION

For the anthropologist "the proper study of mankind is man." Whereas the other social sciences are concerned with only a portion of mankind, or with only certain phases of his culture, anthropology is concerned with man and with human civilization in the large. It seeks to envisage man in his totality. It inquires, What is man, and what has he accomplished?

Man is a member of the animal kingdom, though not until the time of Aristotle was he so described. His closest relations are the anthropoid apes, which are nearest him in appearance, in body proportions, and in blood. A long time ago, certainly a million or more years ago, man and his cousins, the higher apes, diverged from the type of a common ancestor.

Man developed a physical type and a culture peculiar to his species. He began using wood and stone and then learned to improve upon natural tools by slightly modifying them. Improvement led to manufacture and the tool-user became a tool-maker.

The story of his food quest is similar. He first takes what nature offers—fish, game, berries, and wild seeds. It is a matter of millennia, but finally man learns to make nature do his bidding: he domesticates the animals, or some of them; he cultivates the wild cereals and makes them produce more abundantly.

Nor is he limited to his own group for his supplies. Through exchange of articles he comes within the economic circle of his neighbors, at the same time bringing them within his economic circle. The development of transportation devices, of boats and other watercraft, facilitates trade, as do

the paths he makes and the bridges he builds to make easier his goings and comings.

A more complex economic and industrial life generates property and wealth beyond the accomplishments of his simpler ancestors. The things which possess value to all serve as money, and in course of time some one or more of them is standardized.

Where food is scarce taste is apt to be catholic. The savage is not wont to draw the line with fastidiousness, save where some superstition imposes a tabu. Nor is he content with merely food. Drink, too, of appetizing sort, he will have. Accordingly he makes a beverage and supplements it in some areas with a narcotic or stimulant, smoked or chewed.

Meanwhile man has not been alone on the earth. His remoter cousins of the animal realm share his fate, or unwittingly assist him in carving out a career which leaves the beasts far behind. Into his culture as well as into his food quests they enter, in many respects influencing his ideas and his mode of life.

As man's life has a physical basis, so it has a spatial setting. He finds himself an insignificant creature in a world of overmastering natural bodies and natural forces. The sun sets the rhythm of his daily life, marking it off into daylight and darkness. To sun and moon, the chief luminaries of day and night, respectively, he pays particular attention, accounting for their presence and their progress across the heavens by animistic explanations. Practically everywhere he notes the larger constellations and the conspicuous morning and evening stars. He stands in awe of seemingly erratic and unnatural occurrences, such as earthquakes, eclipses, meteors.

His science is crude, much of it being what we call magic, though for him it is a rational and pragmatic way of dealing with occult phenomena which surround him on every side.

Toward much of this apparently non-natural world, toward the sphere which falls outside of or transcends the categories of everyday life, he assumes an attitude of humility, of respect and reverence. This is the basis of the religious attitude which characterizes man in the early stages of his develop-

ment. Wonder and fear, a shrinking before forces which he does not comprehend, are the natural reactions of untutored man. Everywhere man is religious.

Some of this religion may seep over into his dealings with his fellows, but in the main ethics is apart from religion. His ethics is socio-centric, emphasizing only duties toward members of his tribal group though an inter-tribal morality is incipient.

His social life is of various complexion. With few exceptions the savage is bound to his fellows in a political bond which constitutes the tribe, though authority may lodge only in the entire tribe rather than in any individual or in any clearly defined group of individuals. Custom, tradition, and public opinion hold the group together and keep the tribal life going after the approved manner of the past.

His personal relations, his kinship, establish curious ties: Often relations on the father's side are distinguished from those on the mother's side, and frequently age relative to the speaker is connoted by the kinship term.

The tribe is broken up into various pseudo-independent groups, each functioning with a degree of autonomy. Such are the respective sexes and the various age groups, the clans or gens, the totem groups, and the order of medicine-men.

Children are treated with kindness and consideration and are given liberty in excess of that allowed the children of civilized peoples. Their education is begun early and is continued until after the age of puberty, a period of transition marked, in many tribes, by rites designed to emphasize the importance of the change and to impress the youth with the significance of the new tribal status. The initiation rites launch the youth effectively upon a new social career, giving him a new personality fitted to the new duties.

Woman fares not so well as man, to whom she is subordinate. Even so, hers is generally a realm of little more hardship than that of the male and she is by no means entirely lacking in independence and responsibility. Yet savagery, like civilization, is largely a man-made world.

The savage is wont to emphasize change in status more

than do we in civilization, and to accompany important transitions with supposedly appropriate rites. Hence the importance attaching to birth, marriage, and death rites. Life is ushered in and is ushered out with proper ceremony.

The language of primitive man differs so vastly from area to area that any account of it as a feature with common elements is impossible. From the standpoint of content and discrimination, the most noteworthy thing is the angle from which the savage views the world and the partial reflection of his viewpoint in the language categories.

His mythology contains not only his literature and his philosophy of nature, but reflects also his ideas of the past and, often, those of the present.

In esthetic appreciation the savage is not behind the average civilized man, but rather far in advance of him. All primitive peoples have a love of beauty, though the expression differs.

Everywhere man has developed a culture in which his life and his activities are embodied. The activity and thought of the individual savage cannot be comprehended apart from the activities and thought of his fellows in his tribal group, for they constitute an integral social whole of interdependent parts.

Nor does culture remain at home. The tribe is not a culture hermitage, but rather a breeding-ground for a diffusable culture. Culture traits tend to spread over contiguous areas.

Throughout most of human career man has lived in small circumscribed areas wherein we may take the measure of his mind. Seldom did his thought soar beyond the geographical or the culture horizons within which he was inclosed. When it passed beyond them it was by means of flights of fancy or by credulity reckoning little with the facts. About that realm which lay beyond the ken and sense and personal experience he had fatuous beliefs rather than knowledge.

His historical world, too, was narrowly circumscribed. The tradition of the elders handed on the lore of old, but it contained little genuine history. About the historical back-

ground of other peoples he knew less; was not even their present-day life unknown to him?

At the present time man, at least enlightened man in civilization, has broken down these narrow bounds and passed beyond them into larger realms of knowledge and vicarious experience. Civilized man travels over the earth, rather than over a few miles of hunting territory, encompassing its manifold environment.

In physical body seldom, in thought frequently, he encircles the globe, looks upon oceans and continents as readily as early man looked upon hills and lakes, and sees them more understandingly than primitive man saw the immediate landscape. He lives in another sort of world because he is another sort of man.

And yet the fundamental difference between himself and the savage, contemporary or prehistoric, lies in his richer heritage rather than in any constitutional difference, in historic opportunity rather than in a new body or a new mind. He begins where the savage began. His innate equipment appears to be neither better nor worse than that of his remote predecessors of Glacial times, neither better nor worse than that of contemporary man of primitive culture. But the times in which he lives are different. If any greater wisdom he have, that wisdom consists in having been born farther along the procession of civilization rather than having been a contemporary of Mousterian man when civilization was barely emerging in pain and travail from an almost static stage of thousands of years of crude Stone-age culture. The marvel is that though man in essence remains at the start of individual career forever the same, a helpless, naked, inarticulate savage less able to take care of himself than is the offspring of any of the other higher animals, he nevertheless develops into a creature of almost infinite potentiality. He seems racially, though not individually, everywhere alike in potentiality, everywhere different in accomplishment. Men are much the same at birth and in death, yet all pursue from birth to death different careers.

Nor is an end to the changes in human culture in sight.

One can scarcely imagine that more than a fraction of human career has been completed, but surmises that the changes which have been transpiring for tens and hundreds of millennia will continue through as many more millennia.

Cultures, like individuals and nations, tend to run a course. None starts out fully equipped; all deal crudely with the problems about them. All civilizations make progress, for a while at least, but not at the same rate. Some soon reach the end of their career, others last for thousands of years, but none, perhaps, will last for all time. As individuals pass off the stage and pave the way for younger members less hampered by the past, so successive civilizations pass and leave the way clear for other civilizations. The times in which we live are, like all previous times, transitory. To suppose otherwise is to confess ignorance of life and of the civilizations in which human lives have played or failed to play their part. To survey the world of humanity is to see one's own culture in new perspective, to see its littleness as well as its grandeur; for only through comparison can its achievements be appreciated. They belong not wholly to it. Most of them have come to it from other areas or from other times, though many of its own achievements, it may be, have found their way to other portions of the globe.

The man who learns to see himself and his age in their place in human civilization can no longer live a Robinson Crusoe life on his atoll of culture. He wants to breathe the atmosphere of other cultures, he aspires to become a sharer in the fuller fruits of human effort. Of necessity, too, he becomes more sympathetic with his fellows of the cruder cultures when he comprehends something of their efforts to realize themselves in the environment in which the fates have placed them. He understands that the source of the difference between their lives and his own lies not within himself, but in those larger conditions of culture which spin the intricate web of life and thought in which the individual lives and moves and has his being. If to understand all is not to forgive all, it at least is to make one more sympathetic. Antipathies and prejudices are children of ignorance

and isolation, sympathy and tolerance are the offspring of knowledge and cosmopolitanism. This fuller knowledge means that man at last is finding himself.

Civilized man has much in common with the simpler cultures; he is bone of their bone, flesh of their flesh. From ignorance and ineptitude his culture has struggled to knowledge and power. A common background and a striving toward ends essentially the same link us with our fellows the world over, however different our pasts, however contrasting our ideals and our methods for realizing them.

One who tastes of this fuller knowledge of a larger world of humanity will not be content to live again in the old culture seclusion. In this larger world he finds many things, even in savagery, which give pause for thought.

Civilization has not lost all of the untoward traits of savagery, nor has it attained all the traits of a satisfying culture; individual life as well as social life is thwarted in many of its worthiest efforts, and many a reward is woefully inadequate to the price extorted for it. There is much to learn, and much can be learned by turning to other cultures.

If anthropology can accomplish nothing more—and what more need be asked?—it can enable us to understand our culture and our individual lives a little more fully, to hold our fates more securely in our hands, to enrich our experience, and to round out the culture which each of us unwittingly helps to build, or ignorantly tears down. If, as Sir Thomas Browne says, "to live is to be again ourselves," then to know humanity is to become acquainted with ourselves.

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